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AND

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THE July payments of interest and dividends at New York, Philadelphia, and Boston are estimated respectively as follows: $60,000,000, $11,000,000, and $10,000,000.

MESSRS. A. D. HODGES and E. E. OLCOTT, well-known mining engineers, have been engaged to make an exhaustive examination of the great Cerro de Pasco silver mines, Peru. They expect to sail on July 15th, taking with them a number of assistants.

THROUGH an oversight, credit was not given to the American Institute of Mining Engineers for Mr. HOWE'S valuable paper on "Attainment of Uniformity in the Bessemer Process," published in these pages on June 19th. The fact that the data for the paper were collected for the ENGINEERING AND MINING JOURNAL, as stated by Mr. HOWE, did not, of course, lessen our obligation to credit the Institute with the paper.

THE American Exhibition, to be opened in London next year, is assuming a better and more representative character, and President CLEVELAND has accepted its presidency. We wish it every success, and believe that, with efficient and honorable management, the Exhibition may become a benefit to our manufacturers and a credit to the country. The Exhibition, although President CLEVELAND has assumed its presidency, is still a private enterprise.

MR. ALBERT WILLIAMS, Jr., Chief of the Division of Mining Statistics of the Geological Survey of the United States, has accepted the position of Superintendent of the Michigan Mining School, located in Houghton, and will enter upon the duties of his new position September 15th. Mr. WILLIAMS'S experience, both in the practical and theoretical departments of the profession, and his familiarity with the industry throughout the entire country, eminently qualify him for this position. The new mining school is to be congratulated on its favorable start, and considering the many advantages its situation offers, it will, no doubt, become one of the most useful of our scientific institutions. The Division of Mineral Statistics of the Geological Survey will lose a very able and efficient officer by Mr. WILLIAMS'S retirement, if, indeed, his new duties should require this step.

THE great nail strike in Pittsburg has ended, after lasting thirteen months, during which time not a nail has been made in Pittsburg, and competitors have been built up elsewhere who will never allow Pittsburg again to recover its old business or position in the trade.

The following table shows the comparison between the scale originally proposed by the manufacturers, the Mingo compromise scale adopted by the nailers, and the Pittsburg scale now adopted:

Card rate.	Manuf.	Mingo.	Pittsburg.	Card rate.	Manuf.	Mingo.	Pittsburg.
$1.00	12c.	....	....	$2.50	18c.	20c.	19c.
1.25	13	....	....	2.75	19	21	21
1.50	14	....	....	3 00	20	22	22
1.75	15	....	....	3.25	21	....	23
2.00	16	18c.	17c.	3.50	22	....	24
2.25	17	19	18	3.75	23	....	25

The strike ended in a compromise, and the loss to Pittsburg has been enormous, though most of the 4500 men originally thrown out of employment succeeded months ago in finding work elsewhere or in other industries. If, however, this expensive lesson should induce Pittsburg workmen and employers to settle their differences by arbitration rather than by strikes, it will not have been entirely in vain.

THE New York *Times* has recently sent out an exploring expedition to Alaska, under command of that experienced traveler and skillful author, Lieutenant SCHWATKA, and undoubtedly the results will be highly important and beneficial; for it would be difficult to find a more capable correspondent than Lieutenant SCHWATKA. Alaska is rich in minerals, and, in the southern portion, is well adapted to agriculture.

Under the control of the Alaskan Fur Company, which has made such enormous amounts from its contracts with the government, but little information concerning the resources of that part of the country was allowed to leak out; but Governor SWINEFORD'S graphic pen has called attention to the subject, as our pages testify, and we are pleased to see the newspapers now taking it up in such a thorough manner.

The New York *World* appears to have been inspired by the enterprise of the *Times*, and, as a compliment to its sagacity, imitates it by sending out an expedition, also to Alaska, to explore its gold-fields, to follow up the prospectors, to get their stories, and to write up the country. Mr. C. O. ZIEGENFUSS, the editor of the Butte *Miner*, has been selected to command the *World* expedition, and he is undoubtedly well qualified for the post, provided he can leave behind him and forget the Butte style of exaggerating the good points and concealing the unfavorable truth about the resources of the districts reported on. As there are comparatively few people in Alaska to conciliate, or who might be offended by speaking the truth, it is possible the *World's* Alaskan letters may be of great value. The best thing a correspondent can do for the country, for his readers, and for his own reputation, is to tell the truth, the whole truth, and nothing but the truth concerning the country. Under Mr. ZIEGENFUSS, the Butte *Miner* has been the best of the Butte papers, and freer from the usual blemishes of Western journalism than most of our exchanges. There is room, therefore, to expect that, as correspondent of the *World's* expedition, Mr. ZIEGENFUSS will contribute information of a reliable and valuable character.

THE GROWTH OF THE SULPHURIC ACID MANUFACTURE.

The consumption of sulphuric acid is almost as good a measure of the industrial activity of a country and of its civilization as is the consumption of coal; and indeed, the one increases with the other.

In this country, sulphuric acid until recently was made exclusively from brimstone; but the advantages to be gained by the use of pyrites having been fully discussed in these columns a few years ago, the acid manufacturers awoke to the importance of the subject, and almost each

month since then has seen additions to the pyrites-burners, and an increase in the proportion of acid made from pyrites. The production, importation, and consumption of pyrites for acid manufacture have grown as follows:

	Mined. Gross tons.	Imported. Gross tons.	Consumed. Gross tons.
1881	.....	11,927	7,000
1882	12,000	29,818	28,900
1883	25,000	35,811	45,000
1884	35,000	44,250	68,500
1885	49,000	53,223	100,000

The remainder of pyrites not used is supposed to be in stock at the works and mines.

The amount of crude sulphur imported varied but little from 100,000 long tons in each year from 1881 to 1884. In 1885, it was 96,841 tons, and the amount is likely to diminish as the use of pyrites becomes more general.

The capacity of the pyrites-burning establishments in this country at present, including two new works just starting, is about 450 tons a day; but the works are not run at their full capacity, and it is estimated that they will make about 275,000 tons of acid this year, while those using sulphur will make perhaps 325,000 tons, giving a total make of say 600,000 tons of 50 degrees acid as the production of this country for the current year. The rapidity of the development of this great industry is almost unexampled even in this country, and it promises to continue growing, but only in the use of pyrites.

Two establishments use Canadian copper-bearing pyrites; five use Spanish and domestic pyrites; and fifteen or eighteen use domestic pyrites.

Refining petroleum and the manufacture of fertilizers are the chief uses for sulphuric acid here, while in England, where the production of sulphuric acid is about 1,000,000 tons a year, about 49 per cent is used in making sulphate of soda for the Le Blanc soda process. 7 per cent in making sulphate of soda for glass manufacture, 22 per cent in making fertilizers, and 22 per cent for all other purposes.

The prices at which sulphuric acid are now selling are unprecedentedly low, averaging probably not more than $10.50@$11 a ton at the works for 50 degrees acid, and some works in Baltimore have been selling, it is said, below $9 a ton. Foreign pyrites are worth, delivered duty paid, about 10 cents per unit of sulphur. Our domestic pyrites, especially those from the Arminius mines in Virginia, being purer than any of the foreign ores, command a higher price.

We are favored by Mr. ALBERT WILLIAMS with the following figures of interest in this connection:

"The production of pyrites for the calendar year 1885 was 49,000 long tons (of 2240 pounds), valued at $220,500. The imports for the fiscal year ended June 30th were: Long tons, 34,123 Canadian; 2500 Newfoundland; 16,600 Spanish and Portuguese; 53,223 total tons. Per cent copper, 3·85. Pounds of copper, 2,949,363. Value, $230,189. Duty, $73,734.

"The quantity of imported pyrites containing less than 3½ per cent copper was, for the fiscal year ended June 30th, 1885: 6078 tons; value, $18,577; duty, $4559.

"These figures are included in the table of imports above.

"The estimated production of sulphuric acid in the calendar year 1885 was 443,000 short tons, of which 290,000 tons were made from imported sulphur and 153,000 tons from pyrites. This statement is, of course, subject to revision."

THE SQUARE LOCATION BILL.—II.

In our discussion, last week, of Judge SYMES's bill, we reserved for further consideration one argument urged against the bill by the Gilpin County Mining Association; namely, that it will give the capitalist a decided advantage over the less wealthy miner. "By including twenty acres in one location," says the association, "large tracts of land in outside districts can be taken up by speculators with but a few locations, and the land would thus be withdrawn from exploration by a large class who now earn a livelihood thereby, and add such a stimulus to our camps by opening up new discoveries." And this statement is followed with an illustration, showing how seven claims, 808 feet in width by 1077 feet in length, located at an expense of $350 for sinking the discovery-shafts, surveying and recording, "would at once cut out from the field of the prospector a block of ground over one mile in length by nearly one quarter of a mile in width, which, under the law governing annual assessment-work, would hold the claims for the balance of the year in which they were located, and during all of the succeeding year."

On examining this pathetic tale, we are first struck with the cost of locating claims, which is put at $50, including the sinking of the discovery-shaft. Probably, if the locator did that with his own hands, $10, or $15, would cover all his money outlay in securing each location. Now, since it is the prospector who discovers the ore-deposit, and no location can be made until the deposit has been discovered, one would think the chance of getting a large location for a small sum was an advantage to the miner rather than the capitalist. If our Gilpin County friends mean that one man with $15 or $50, or seven men with $50 each, are capitalists, and that the mineral land system of the United States ought to be tempered to the shorn lambs who have not even the money to pay the recorder, we think they are going farther than statesmanship requires.

But pray, what has all this to do, in any event, with their opposition to the proposed law? It is a feature inseparable from any system under which the government confers rights upon locators that such rights, once conferred upon a first-comer, are thereby withheld from all later comers. Under the present law, which these critics desire to have continued, a mining location may be 1500 feet long by 600 feet wide; in other words, it may have an area of 900,000 square feet, or a little over 20¼ acres. Every foot of this surface is the sacred possession of the locator. Nobody can enter upon it against his will. It is absolutely "withdrawn from exploration," except so far as the owner of adjoining ground may follow into it, *in depth*, a lode of which he owns the apex. But this contingency, as every body knows, does not occur during the prospecting period.

It follows, then, that seven wicked capitalists with $50 apiece, or with their sinful, horny hands and, say $15 apiece, can, *under the present law*, "withdraw from exploration" and "cut out from the field of the prospector," a block of ground some 2½ per cent larger than they would be able to monopolize under the proposed law!

But it will be replied, that although the United States law does permit the dimensions given above, yet the local regulations often limit the width of locations, the Federal statute simply setting 600 feet as a maximum and 50 feet as the minimum. That is true; and it is equally true that the drift of sentiment among intelligent miners is in favor of the maximum location permitted by the law. A pretty mess some of the districts have made of it, getting their locations in many cases too narrow to hold an apex!

The fact is, the worst speculators in mines are those who want merely to make and sell *locations*, and who, in order that *this* business may remain lively, want to keep the locations small, so that there shall be plenty of them. If they can force a real miner to buy out two or three locations before he can be sure that he owns one mine, they have made him "contribute to the life of our mining camp," which is euphemistic for "pay black-mail." The twenty-acre lode-claim which is now permitted by the United States law is none too large to secure and protect the ownership of a respectable mine. At the same time, it is large enough to make the extra-lateral right unnecessary. Hence we believe that the introduction of the "square location" on that basis as to size would be practicable and beneficial all around. The owners of existing locations ought to jump at it; for it would increase at once the value of their claims. Even to prospectors and future locators it would give with one hand as much as it took with the other. Every body would be benefited by it, except black-mailers. For the experts and the lawyers, though they might find a part of their occupation gone, would ultimately find their advantage also in the relief of a great industry from a great curse.

THE "SUN" ON THE UNPROFITABLENESS OF MINING INVESTMENTS.

The New York *Sun* has thrown some rather curious rays upon the question of the profitableness or otherwise of mining investments, taking for a text the list of 266 mines published in the ENGINEERING AND MINING JOURNAL each week.

Our luminous neighbor is in a condition of partial eclipse, through ignorance of the subject; but since it claims to "shine for all," and we assume does not willingly give off misleading rays, we gladly correct some of the erroneous premises from which it concludes that mining investments are unprofitable.

This is what the *Sun* says:

"We find in the ENGINEERING AND MINING JOURNAL a list of 266 gold, silver, and copper mining companies in the United States, 136 of which are classified as dividend-paying, and 130 as non-dividend-paying.

"The nominal capital of these companies is the enormous sum of $1,358,185,000, that of the dividend-paying being $679,400,000, and that of the non-dividend paying, $678,780,000. The total amount of dividends paid to date has been $157,325,500, or something less than 12 per cent on the whole nominal capital, and about 23 per cent on the capital of the dividend-paying companies during their whole history.

"But over against these insignificant dividends, we must put $79,788,846 of assessments, $45,271,802 on the stock of the dividend-paying companies, and $34,517,044 on that of the non-dividend-paying. The net profit, therefore, represents only a little over 6 per cent on the total nominal capital. The amount paid as assessments is rather more than half the dividends.

"This is a pretty discouraging statement for those who have put their money in such mines; for it must be remembered that many of the companies have been at work for many years, and few of them are of recent origin, mining for the precious metals having attracted little new capital since 1880.

"That is a doleful story of the gold and silver hunt, though we may brighten it a little by saying that, under other names and early in their history, about $75,000,000 in additional dividends was earned by some of the mines."

And after referring to the figures of some of the Comstock mines, it says:

"Nothing can make the history of the business of mining for the precious metals other than a history of loss and failure, rather than of success and profit. The men who sold the mines made the fortunes, or those who manipulated the

stock and unloaded it on a confiding public. This unproductiveness of mining ventures explains also the cause of the increase in the purchasing power of gold, which afflicts the commercial world at the present moment. The easily accessible and easily obtainable gold of the newly discovered mines of California and Australia has been exhausted, and that which remains is extracted with great labor and expense."

The *Sun* is totally in error in assuming that the capital of assessable companies represents investment.

The usual ten million dollars capital of a California company only represents so much investment as is shown by the assessments, except where it is given for property. The Comstock companies furnish the chief arguments against mining. They are indeed examples at once of wonderful productiveness in the mines and of boundless extravagance, not to say dishonesty, in the management; the outcome of the individual mines offering lessons of fabulous profits and of enormous losses, while the average of the whole lode, though not perhaps as profitable as most good mining camps, is the most prominent example to which we can refer.

The mines of the Comstock are estimated to have cost at the time of their organization into more than one hundred companies an aggregate of not more than $200,000. Since that time, and up to the end of 1885, the total assessments had amounted to about $79,000,000, of which probably less than $75,000,000 were paid in. This sum may therefore be counted as the amount of investment outside of what may have come from the product of the mines themselves.

The mines of the Comstock have produced, since they were opened and up to the end of 1885, the enormous sum of about $320,000,000, of which about 42½ per cent was gold and 57½ per cent silver. Out of this product, the companies have paid in dividends, in round numbers, $120,000,000, or, say $45,000,000 over and above the total investment. Of the difference between $45,000,000 and $320,000,000, it is estimated that fully $55,000,000 went to the railroads in freights, and the $275,000,000 remaining went for labor, supplies, and improvements in working the mines, and in paying the extravagant management and expenses that might, perhaps, in part, be classed as "stealings." It must be borne in mind, however, in considering the enormous sums employed, which amounted to 62½ per cent of the entire production, that the Comstock mines were opened in a barren desert, difficult of access, and where every thing had to be brought from a great distance, and cost fabulous prices. Miners were paid five dollars a day, and every thing else was in proportion. Much of this vast expenditure was undoubtedly necessary and unavoidable in the exceptional circumstances under which these mines were developed, and it created not only a number of mines but a State, and built up prosperous cities and industries to represent a portion of the profits on gold and silver mining. The men who received princely salaries, the merchants who amassed fortunes from the unheard-of profits on their goods, and the gamblers in stocks who finally collected from their less successful fellow-gamblers, and held, temporarily at least, the millions that the great mines produced, united to build San Francisco's palaces, and to establish its great industries, as well as to contribute to those elsewhere throughout the land. Two hundred and seventy-five millions of dollars added to the wealth of the country (after paying back the entire investment of seventy-five millions of dollars); States and cities created, and innumerable industries built up, are the tangible outcome of "that doleful story of the gold and silver hunt" on the Comstock vein, and this is "the history of the business of mining for the precious metals" in a camp selected as one of the least profitable to the investors, and these are the facts the *Sun* tells us "nothing can make other than a history of loss and failure rather than of success and profit."

The fortunes were not made by "the men who sold the mines" for $200,000, nor "those who (first) unloaded the stock on a confiding public" at a few cents a share, subject to assessment, as was done in most cases.

Nor is the *Sun* more fortunate in its reference to the non-dividend list. Take, for example, the Tamarack Mining Company, which has a capital stock of $1,000,000, but on which, in reality, only $520,000, or $13 a share, has been called up. This mine has not paid any dividends, nor will it for some time to come; yet its stock is worth from $90 to $95 a share on $13 paid—an example that shows the rashness and foolishness of such statements as the *Sun* makes.

In January last, we published a list of 51 companies that paid more than 8½ million dollars in dividends during the year, and we gave the market value of the stocks of 34 companies, which showed that their dividends amounted to 11·4 per cent on the market price of their shares. This is certainly not "a doleful story" for investors, and we can not recall any other list of stocks publicly quoted and paying that amount (about $7,000,000 in the year) in dividends that paid 11 per cent, or that offered better security than these mines.

Of course, many of the most profitable mines are not quoted, and the least valuable stocks are those that are oftenest heard from "on the market."

No, the history of mining is not a "doleful story." On the contrary, mining is the most profitable industry we have both for the country and for those engaged in it. It is infinitely more profitable, as an investment, than agriculture, and it is only the fact that it is recognized to be exceptionally though irregularly profitable, which induces that wild gambling in stocks that absorbs the money the *Sun* erroneously imagines is invested in mining.

Does the *Sun* denounce agriculture because most of the gamblers who speculate in wheat and cotton "futures" lose their money, or does it utterly condemn railroad building as an investment, because the accumulation of Mr. GOULD'S millions reduced to poverty hundreds of foolish gamblers in Wall street, or thousands of "the confiding public" who placed the management of their property in dishonest hands?

CORRESPONDENCE.

[We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
All letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.]

Fast Tunnel Driving on the New York Aqueduct.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Section A, of the new Croton Aqueduct, comprising shafts Nos. 22, 23, and 24, is driven by Rodgers & Farrell. Both gentlemen were pioneers in the application of machinery to rock excavation, and their experience extends over a great part of the heavy tunneling of late years. Mr. Edward Farrell, of the firm, is in immediate personal supervision of this work. Remarkable progress has been made in the work on this section, which extends for the whole distance through granitic gneiss.

At eight o'clock of Tuesday, June 22d, the headings between shafts Nos. 22 and 23 met. In the north heading of shaft No. 23, 254 feet 6 inches of full section tunnel were driven in 22 days. In the south heading of the same shaft, 265 feet 6 inches of full section tunnel were driven in 26 days. In the north heading, in one week, foremen J. Kelly and Morgan Flynn drove 83 feet of full section tunnel. In the south heading, foremen Frederick Hamilton and Morgan Callahan in one week drove 75 feet of full section tunnel. Foremen Hamilton and Callahan, with their 265 feet 6 inches of complete tunnel, have made the best monthly progress on the 15 miles of tunnel under contractors O'Brien & Clark, and foremen Kelly and Flynn, with their 83 feet of complete tunnel in one week, lead the boys on the entire line of work. To the gang making the greatest monthly progress, contractors O'Brien & Clark offered a cash prize of $300, and to that making the second best, $200, which prizes have been well and fairly won by Hamilton and Callahan, with their boys, in the south heading, by a record of 265 feet 6 inches, and by Kelly and Flynn, whose gang in the north heading show 264 feet 6 inches. The greatest advance by one blast was made with Forcite powder, Nos. 1 and 2, in which, by the blasting of a single round of holes, 9 feet 4 inches of full section tunnel were gained.

Five 3½-inch "Eclipse" Ingersoll drills are used in drilling in each face. These machines are employed exclusively on this section.

NEW YORK, July 1.

SALT LAKE NOTES.

Correspondence of the Engineering and Mining Journal.

Last year's favorable output of the many mining camps tributary to the ore market of Salt Lake City continues this year under the well-sustained price of lead, notwithstanding silver has had a steady tendency downward in value. Some of the old districts—in fact, nearly all the old mining districts—are to the front as steady producers, notably Bingham, "the old reliable," as it is called; Stockton, Ophir, Dry Cañon, Tintic, Park, and the Cottonwoods. All these districts contribute ore to the Salt Lake market, as well as ship to ore-reducing centers farther East.

There is considerable rivalry and high bidding for carbonate ores, so much that the smelter's profit, I fear, is one of those intangible things that figures can not reach. The proportion of sulphide ores requiring roasting and oxidization becomes greater every year as the mines attain depth, and in their treatment the smelters find their greatest profit, although they have slowly and reluctantly increased and perfected their facilities for treating them. Yet the day is not far distant when carbonate ores in any thing like quantity will be a thing of the past, and the unchanged ores will be the main reliance of the miner and smelter.

Bingham Cañon perhaps presents the earliest and strongest example of the replacement of carbonates by sulphides in mining to the deep. The sulphide ores carry lead, silver, and gold as saving metals, with iron enough to make a desirable flux.

Under the stimulus, therefore, of a growing market for these ores, the mine-owners are awakening to a sense of the value of their mines in depth, and some are sinking or driving tunnels to open them more extensively.

The deepest point reached has been by the English New Last Chance Company, which, by a tunnel 1500 feet in length, has just tapped the vein at a depth of 1000 feet, and has begun to drift on its course with flattering prospects.

The operations of this company will be watched with much interest; for its vein near the surface and to a depth of from 400 to 500 feet, yielded, it is said, about $1,050,000.

The vein is a masterly one, has a course northeast and southwest, and dips almost vertically at the discovery-shaft. The formation is syenite.

The history of the company has been like that of many other English corporations that have passed through a long-continued experience of mistakes and disappointments, through all of which, however, the property has been held, and is now judiciously prospected and managed by a capable mining superintendent of more than local experience and reputation.

B. W. T.

SALT LAKE CITY, UTAH, June 23.

THE PYRITES DEPOSITS OF THE ALLEGHANIES.*

By Arthur F. Wendt.

(*Continued from page 447, Volume XLII.*)

THE VERSHIRE MINES, VERMONT.

Seven miles west of the little town of Corinth, on the Passumpsic Railroad, in Vermont, are found the "Vershire" copper mines. The road from Corinth climbs a hilly country. Bold bluffs of granite and gneiss bar the way. Approaching the mines, we meet the usual talcose slates. Halfway up, on a steep hillside, the pyrites were first discovered, dipping at a low angle into the hill. On their strike, they were traced several hundreds of feet; but only a short distance were they deemed worthy of the exploitation, which has followed them into great depths —over 1800 feet. Entrance to the mine is had through an adit about 400 feet in length. Where it intersects the old excavations, now void of ore, a boiler and hoisting-engine are located.

From here, an incline, at an angle of 26 degrees, follows the foot-wall to a bend in the track some 700 feet from the top; at this point, the incline branches, and three diverging tracks join as one; they extend to the bottom of the workings. A large unbalanced iron car, holding two tons of ore or rock, can be switched on to either of the three diverging inclines, and this alone serves to raise the product of the mine. The car makes fifty trips a day. Following the abandoned excavations of the Vershire mine, from the surface down, a clear picture of the occurrence of these ore-beds is obtained. Three times in the history of the mine, the end of the ore seemed to have been reached. The hanging and foot closed in, until the ore disappeared. As a matter of fact, the limits of that lens or lenticular mass had been reached, and it was exhausted. But invariably, on sinking and cross-cutting into the foot, the edge of a new deposit rewarded the work of the explorer. At the date of the writer's examination of the mine, a face of ore twenty feet thick in the middle, and nearly one hundred feet long, was worked in the bottom. On both sides, the ore pinched; on one side, gradually, until a mere seam was left; on the other, it assumed a forked shape, as if a wedge of country-rock had been forced into the body of the ore. Underhand stoping was carried on, and the ore hoisted as rapidly as it was broken. As a result, no development in advance of the mining could be done, and if ever the end of the lens of ore was reached, the production ceased and operations were at a stand-still until the discovery of a new ore-body. Such reckless mining brought its own reward in the difficulties the mine has since encountered. The character of the mineral of this mine is that of the "slate" ore-beds; that is, siliceous. The percentage of copper is usually high, the produce for many years averaging over 6 per cent. To the extent of the increased percentage of iron, due to the larger amount of chalcopyrite, is the ore more basic than other slate ores.

At the mouth of the adit tunnel, the mine-cars are dumped on the cobbing-floors. Rock, mundic, and low-grade ore in large lumps are thrown over the dump. Of the remainder, the rich, coarse ore was cobbed and cracked, and sent to the roast-yard. The fine ore was thrown on hand-riddles, and the screenings were accumulated in a pile and allowed to agglomerate by slow oxidation. The ore remaining on the sieves was carefully handpicked by boys.

An inclined plane connected the cobbing-floor with the roast-yard. The loaded cars drew up the empty. Of the arrangement of the roast-yard, the accompanying drawing gives details.

The average of the ore sent to the roast-yard contained as follows: Silica, 15 per cent; sulphur, 25 per cent; copper, 7 per cent.

The roasted ore was run by tram-road to the ore-furnaces, and was there smelted without flux other than an occasional dose of sand.

Ore Smelting.—The smelting of the roasted ore was carried on in shaft-furnaces, of which the wood-cuts give details.

Each furnace smelted 25,000 pounds a day. The attendance consisted of a furnace-man and helper, or slag-roller, at the bottom, and half of one charger at the top. By reason of the proximity of the furnaces, it became possible for one charger to attend two furnaces.

Referring to the drawing, the absence of a crucible in the furnace proper will be noted. The smelted matte and slag is not allowed to gather in a crucible inside of the furnace, but runs out as fast as molten and collects in the crucible cut in a fore-hearth *E*, of tamped steep, held in place by cast-iron plates. Slag runs continuously over the slag-lip *G* on the front of this fore-hearth, while the matte settles to the bottom in the exterior crucible, and is tapped at intervals through a tapping-notch *E*, on a cast-iron plate *F*, brushed with clay-water. The exterior crucible is remade at the end of every shift by packing with fresh steep. The stream of melted matte and slag leaving the furnace is changed from one side to another whenever it has cut an appreciable furrow in the surface of the steep fore-hearth.

A is a bottom of quartz; *C*, the red brick body of the furnace; *B*, the shaft of fire-brick; *D*, the breast only 4½ inches thick; *H*, the blast-main; *I*, charge-floor; *J*, two tuyeres.

It is by this simple system of at once removing the melted material from the furnace proper that the troublesome sows are avoided.

Practically the same principle, although in a more modern form, is used in the Herreshoff and Orford furnaces, still to be described, and has been used in Germany for many years. Such furnaces are there called spectacle furnaces.

As stated, the bottoms of the Vershire furnaces were packed with crushed quartz, the lining built of fire-brick. At the end of two weeks, both need repairs. New quartz is packed on the bottom, and the repairs of the lining made with an average of only about 250 bricks. The whole stoppage for repairs takes scarcely a day, as against a week or more in the Ducktown and Ore Knob practice.

The slags produced are of the same character and have the same composition as those made at the last-named places, but the matte never falls below 30 per cent of copper. This is partly due to the richer ore, but mainly to the careful and complete roasting.

A pair of Sturtevant blowers, run by a turbine, or, in the event of a failure of water-power, by an engine, furnish the blast for all the furnaces. They are arranged in one line, and form a very compact plant, both less expensive in first cost and better arranged for economy of labor than any described so far.

Matte-Roasting at Vershire was carried out in stalls, and with a care equal to that of the ore-roasting. A drawing of the stalls explains their construction. Two rows of these stalls were built facing one another, with a paved floor between. The first matte cast in sheets on the iron plates is cracked, and piled to a hight of 8 feet on the iron grate-bars *A*, of the stalls. For a hight of 3 or 4 feet, the front of the stall is closed with loose brick, and the open front above the brick temporarily closed with an iron sheet while firing the matte. Brushwood burned below the grate-bars serves to ignite the matte. The sheet-iron is then removed, and the matte allowed to burn with practically no draught. The two chimneys, made of drain-tiles *B*, carry off the smoke and make the work between the two rows of stalls comparatively pleasant. *D* are wooden buckstaves; *F*, supports for the grate-bars; *C* and *E*, the red brick body of the stalls.

Four fires are necessary to reduce the sulphur sufficiently to admit of black copper smelting. Second matte from that smelting was mixed through the first matte and again roasted.

Black Copper Smelting.—The cuts of the black copper furnaces show them to have been both small and crude in design. The smelting process at Vershire, up to this point, was decidedly superior to that of other works. Here superiority ceases, and in its place a retrograde movement sets in. We find the principle of a detached exterior crucible carried out in black copper smelting without commensurate advantage. Black copper furnaces do not "iron" in the crucible, hence nothing is gained there. But they always tend to produce slags in copper, unless the crucible is large and hot, and thus admits of the gradual settling of particles of black copper, suspended in the molten slag. *C* is the shaft of the furnace with one tuyere; *A*, the fire-brick lining; *B*, the shell of the furnace; *E*, the stack; *D*, the fore-hearth of steep, common to a number of these furnaces.

The small matte furnaces smelted only 12,000 pounds of stock a day.

A large proportion of the slag made in these small matte-furnaces contains over 1 per cent of copper, and must be returned to the ore-furnaces. Skulls of black copper forming in the small exterior crucibles are added to the charge of the matte furnaces.

The following were the rates of wages and cost of materials at Vershire in 1877 and 1878:

Gas coke at smelter.....½ cent per pound.	Freight to and from railroad.$2.75 per ton.
Wood.....$4 per cord.	Miners.....$1.50 per day.
No. 1 fire-brick.....$100 per M.	Common labor.....$1 per day.

At this comparatively low cost of fuel, labor, and supplies, the total cost of smelting, with the plant described, must have been quite low—but little, if any, above five dollars per net ton of ore treated. The ore yielded considerably in excess of any of the pyrites mines described heretofore, and the works should have netted a handsome margin in the years gone by, when copper averaged from fifteen to twenty-five cents a pound. That this has not been the case, is attributable to the system of mining before referred to, and to an evident lavish expenditure in that department.

Some two years or more ago, a square furnace, a counterpart of that used by the Orford Company, and a concentrating plant, were erected hat te Vershire mines, with the view of reducing expenses. Nevertheless, the property is now idle.

In the opinion of the writer, improvements such as described, while well enough in their way, are not the proper course to render the mines profitable. They should be sought rather in so cheapening the transportation from the mines to the industrial centers that the sulphur can be made available. In all of the mines connected with railroads, the sulphur will pay for this transportation, and the roasted ore can then be economically treated in large central establishments located near the points of consumption of the copper produced.

About seven miles from the Vershire mines, the Corinth and Union mines are located.

They are part of the Vershire belt of pyrites; but the ore-bodies are smaller, never exceeding a thickness of ten feet at the widest part, and a length of 150 feet on the strike. A section of the Union mine, shown by Fig. 3, is self-explanatory. Here, again, the quartzose hanging-wall recurs that we have found in Tennessee and North Carolina.

The strike of these beds is due north and south, pointing toward the Canadian mines at Capelton, which are probably on the same belt of rocks.

The ore mined at the Union mine was carefully broken and sorted, and then shipped. Formerly, Baltimore purchased the ore, but more recently, the property was sold to the Vershire Company. In 1876, the Union mine shipped about 175 tons of ore a month, assaying 9·5 per cent of copper. The cost of hauling to the railroad was $3, and thence to Baltimore $9.50, an aggregate of $12.50 a ton. This left little or no margin. Together with the Vershire mines, the property is now idle.

Again taking up our northward march, we see how the Eozoic formation expands, in the New England States and Canada, and covers a wide range of country. The beds of pyrites are no longer confined to a narrow strip, striking northeast and southwest, but are scattered over a large territory. From Anthony's Nose, almost due north, one range of deposits seems to extend, embracing Vershire and the Capelton mines of Canada. Another series of beds takes a more easterly course, beginning with the Davis mine at Rowe, near Charlemont, Massachusetts, and including the Milan mines in New Hampshire, Blue Hill mines in Maine, some small beds in New Brunswick and Cape Breton, and the very considerable ones of Notre Dame Bay in Newfoundland.

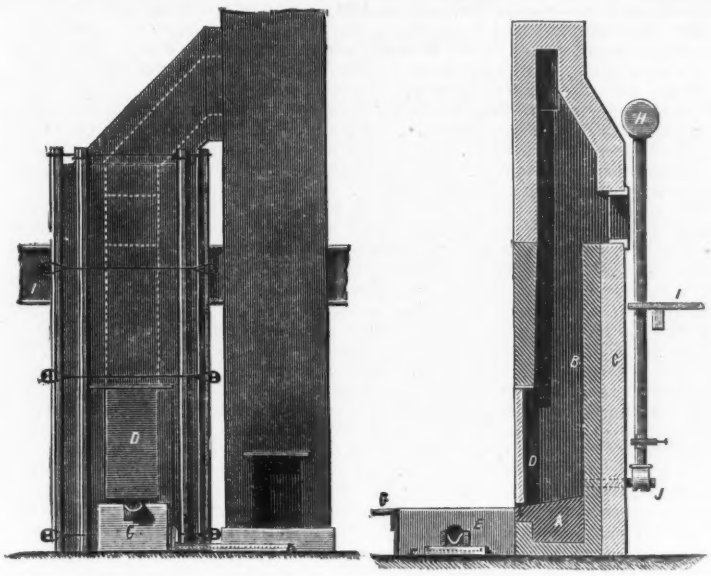
There remain to be described only the Massachusetts, New Hampshire, Maine, and Canadian mines.

Taking them up in the order of our march, we come first to the Charlemont mine in Massachusetts, or, as it is now known, the Davis mine.

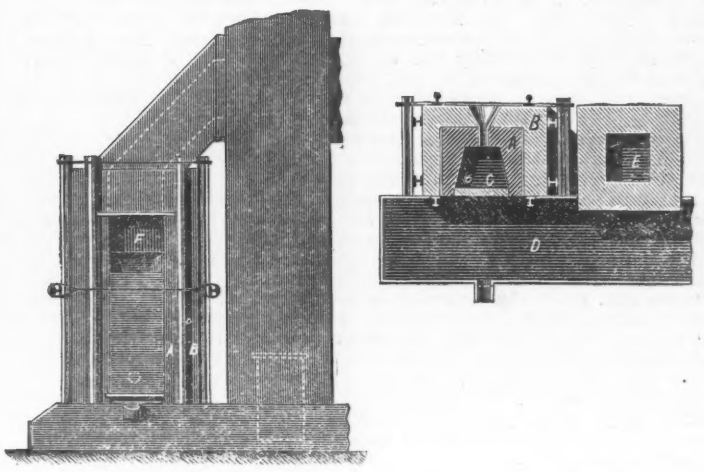
THE DAVIS MINE.

This body of pyrites belongs to the true iron pyrites, or iron bisulphide beds. It has a foot-wall of micaceous schist and hanging of chloritic slate.

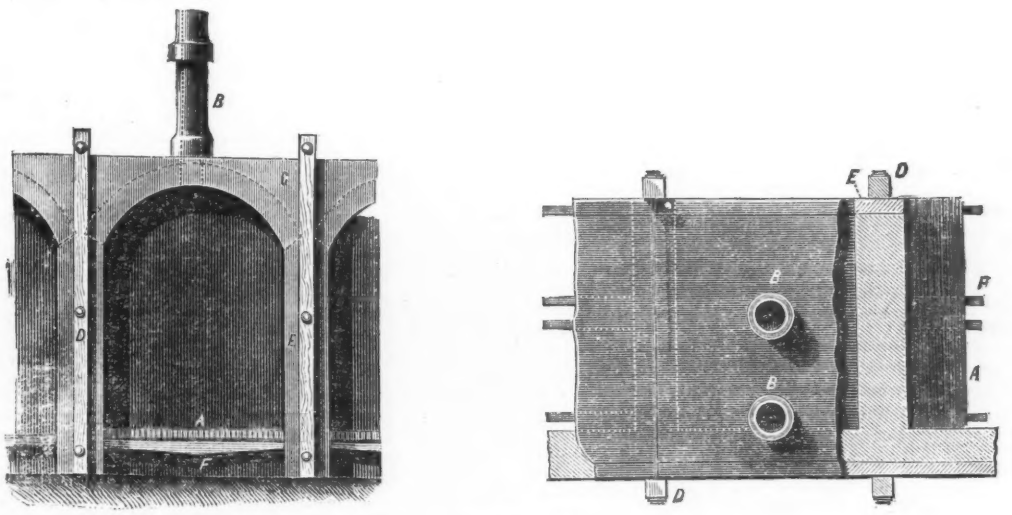
* Reprinted from Vol. VII. of the *School of Mines Quarterly*, New York, 1886.



Figs. 20 and 21.—Vershire Ore-Furnaces.



Figs. 24 and 25.—Vershire Black Copper Furnace.



Figs. 22 and 23.—Vershire Matte Roasting-Stalls.

The ore-body has been developed for a length of 600 feet and a depth of 300 feet, and exposes a vein from 9 to 25 feet thick. The mine is only 4 miles from the railroad at Charlemont, distant 60 miles from Troy, 119 miles from Boston, and 108 miles from New Haven. By reason of this proximity to markets, it is now profitably wrought, although containing almost no copper.

Average analysis of the ore is as follows:

Sulphur	48·31 per cent.	Zinc	none
Silica	3·00 "	Arsenic	"
Copper	1·41 "		

The capacity of the mine is some 3000 tons a month.

At one of the works using the ore, namely, the Merrimac Chemical Company, the kilns burn 800 pounds Davis lump ore in twenty-four hours, and reduce the sulphur to 3 per cent. Davis fine ore is consumed at the rate of 1300 pounds per furnace, but about 1 per cent more sulphur, that is, 4 per cent, remains in the residues.

The company operating the mine is doing a steady and increasingly profitable business, even though the ore is valuable only for the sulphur it contains. Its success again emphasizes the necessity of utilizing the sulphur of the great Southern deposits to render them profitable.

THE MILAN MINES,

situated in Coos County, New Hampshire, have been worked continuously since the middle of 1881.

The general character of the ore-bodies is identical with the many described. The lenticular masses are from 14 to 40 feet wide, and contain bands of blende and copper pyrites, and also occasionally some bunches of galena. Blende is commonly found near the walls, and diminishes somewhat in depth.

Average analyses of the pyrites by Amory Austin, of Boston, in 1883, were as follows: Sulphur, 48·48, 49·30, and 50·29 per cent.

The ore is claimed to be free from arsenic. This claim, indeed, is made by all the pyrites producers, yet acid made from pyrites invariably contains more or less of this impurity. The mine is only 102 miles from Portland, and connected with it by the Grand Trunk Railroad.

The ore at the mines is sorted into three classes, which are as follows: Sulphur ore, 75 per cent of total mined; copper ore for smelting, 10 per cent of total mined; smalls, 10 per cent of total mined; waste, 5 per cent of total mined.

The No. 1 sulphur ore assays as follows:

Sulphur	48·0	Silica	5·0
Iron	43·0	Arsenic	traces
Copper	1·6		
Zinc	1·5	Total	99·1

Ore containing as high as 10 per cent blende is sold as No. 2 sulphur ore. By reason of the formation of sulphate of zinc, such ore can not be burnt clean.

The selected copper ore is smelted on the spot, and the resulting argentiferous matte is shipped.

(TO BE CONTINUED.)

Duties on Base Bullion and Ores.—The Acting Secretary of the Treasury has issued the following directions in regard to the assessment of duty on certain ores: First, base bullion in which lead predominates in weight should be classified under the provision for "lead in pigs;" and secondly, ores composed of silver and lead and iron, or silver and lead, or silver and other base metals of which silver is the component material of chief value, would be exempt from duty under the provision in the free list for "ores of . . . silver."

Iron Ore.—The Treasury Department has instructed customs officers that "duties must be assessed on the actual quantity of merchandise imported, as shown by the returns of the weigher, gauger, or measurer, as the case may be," except that an allowance may be made for damage by sea-water on the voyage of importation, or on account of excessive weight caused by "accident or unusual leakage," or absorption of moisture or sea-water on the voyage of importation; but that before such allowance can be made, the importer must file due application therefor with the collector of customs within ten days after the landing of the goods, and have the percentage of damage or increased weight, as the case may be, duly ascertained and reported by the appraiser. The Secretary adds: "Nothing would seem to prevent the appraiser, when estimating the percentage of increase of weight, from considering the report of the analytical chemists employed by the shippers and the importers of the ore as a basis for the purpose of definitely determining the quantity of dry ore imported, it being understood, however, that the appraiser shall use his own judgment in such matters, and shall only accept the reports of such chemists when satisfied that they are substantially correct."

THE REPUBLIC IRON MINE.

By C. D. Lawton, Commissioner of Mineral Statistics for Michigan.

Taken all in all, the Republic is probably the best laid-out mine in the State. There is more ore to be seen in the mine now than there is in any other, and then it is of better quality than that of any other, except the Champion. I might except the Boston; but that is a small mine, and is not working. The Republic has also taken its place with the other great mines in the improvement of its mining plant. Its new hoisting machinery is probably not excelled in power or in perfection of working by that possessed by any other mine in the world. In many respects, the mine is improved, and thus altogether the inspector is greatly impressed with its magnitude and importance.

The ore-deposits in this mine outcrop along the westerly slope of the high bluff that descends to the shore of Smith's Bay. The high jasper formation curves around, conforming to the contour of the water, being at the south end of the bay nearly east and west, and on the east side of the bay running north and south. The bay, which is a bayou from the Michigamme River, thus lies in a basin formed by the converging dip of the high jasper bluff, which nearly surrounds it. It is an exceedingly interesting location, scientifically, practically, and æsthetically; scientifically, from the excellent opportunity that this immense and varied outcrop affords for geological study; practically, from its great importance, derived through the magnitude and richness of its ore; and æsthetically, from the remarkable beauty of the scenery itself. It is one of the most romantic locations in the whole Upper Peninsula.

Many of the ore-deposits in this mine, especially the shafts at the south end, are really chimneys of ore or lenses set up partially on end inclining toward the lake, and the shafts go down, following through the long way of these deposits.

These chimneys of ore also approach each other in their descent, and thus have the appearance of radiating from one body, like the fingers from the body of the hand. This fact has led to a belief that is quite freely entertained, that all these now separate deposits come together finally, forming one great body of ore underneath the bay. The theory is not an improbable one; there are many facts that tend to verify it, and lead to the inference that this fine hypothesis may ultimately be found to be a pleasing reality.

Beginning with the Perkins shaft, the most southerly and westerly one, the ore is a red specular, not as much in favor as the best ores of the mine, and the shaft has been abandoned. Next east of it is the Morgan. The dip of the shaft is 38 degrees to the north, and it is 800 feet long. The levels are 50 feet apart. They are working the three lower ones. The lowest is the twelfth. It may be well to state that the lower levels in all the shafts are not yet very near the bay. Assuming a continuity of the present dip and rate of advance, the bay will not be reached before ten or twelve years.

In the Morgan shaft, and Ely, etc., the levels are shaped like the section of a lens with the long axis north and south, or in the direction of the line of the shaft. The Morgan gave more ore last year than ever before. There are bunches of jasper in the vein, but the rock is left in pillars. The pit is about 120 feet long—that is, the levels are—and from 20 to 30 feet wide. The ore is magnetic and specular slate, and is all first-class. The slate ore generally overlies the magnetic. The former is friable, made up of glistening scales. The product is about equally divided between the magnetic and slate. They are sinking below the twelfth, and apparently the pit is likely to afford as much ore the coming season as it did the last one.

The collar of the shaft is 75 feet above the bay, as is also that of the Pascoe shaft, which is the next one east, and which is also of the same depth. There are three lenses of ore in this pit; two of them slate ore, and one magnetic. They are parallel and are placed edgewise in the same manner. The shaft is sunk to the thirteenth level, which is just opening out, though there is a half-year's stoping in the upper levels yet. The policy, of course, is to keep the mine well opened ahead of the stoping. The average angle of the shaft is 38 degrees to the south, having very much flattened, since at the top it is 50 degrees. The shaft is in the middle lens. They are separated by banded jasper. These lenses furnish a small amount of second-class ore against the walls. The body of the ore is first-class. The levels in the east vein are 50 feet by 12 feet; in the middle one, 10 feet by 30 feet; and in the west one, about the same. It does not look very promising, and is thought not to be improving. There are ore-pockets for each shaft. Each pit is worked on separate contracts. The ore is mined by the ton, put into the tram-car. Usually, the contract includes 8 men. The men take the contract to do the sinking and drifting, break the ore, etc., for the year; leaving the pit in the same condition at the end of the year as it was at the beginning. It is so much per ton for breaking the ore, so much per foot for the shaft, so much per foot for winze, etc. The contractors pay the fillers, and the company hoists the ore and charges the men with the supplies.

The Morgan and Pascoe shafts are single skip. The latter used to be double; but the skips now are larger than were formerly used, and one answers the purpose. They carry one and a half tons. This is one of the results of the new machinery.

The next pit is the Ely, which used to approach the Pascoe; but at a depth of 600 feet its direction was changed to run parallel with it. The Ely shaft is also 800 feet long, and sunk to the thirteenth level, and opened out for another year's work. In the eleventh level, the Ely and Pascoe are connected by drift. In the Ely pit, is one large lens, in which the shaft goes down the same as in the preceding, except that its direction was changed, as above stated to keep it in the ore, the lens having turned a little to the east. The pit produced more last year than in any year before, and it is considered to be looking as well now as it ever did. Pillars are left for the shaft in this and in the others also.

A new plant of hoisting machinery has been lately procured for the pits, placed in a large brick building—iron roof—erected for the purpose. This plant comprises four drums, each 12 feet diameter, 7-foot face; Merritt's external friction gear. It runs as smoothly and perfectly as the works of a chronometer. The Ely pit ore is all first-class slate ore, except about 3000 tons on the side next to the Pascoe. All the ore from the west end pits is sold for Bessemer. The ore is about 15 feet wide, average, and 100 feet long north and south. The water is taken to the Morgan by a Cameron pump, and thence to the surface by a 12-inch plunger. There are two Cameron pumps in each pit, and occasionally a small one is used for some especial purpose, as the sinking of a winze, etc.

The Republic has had, considering the state of the market, one of the most successful years in its history, which is probably due to the new contract system. The men work harder, because working for their own interest, and, it is stated, have made better wages than ever before; but there have been more men killed by accident than in any previous year. The men will, under the incentive of greater profit to themselves, take more chances than they do when working on company account. They require constant watching. It is also stated that the ore has cost the company less per ton than ever before.

The next pit, the Gibson, is a small one, 5 or 6 feet wide and 50 feet long. It approaches the Ely, and will, in time, make another opening for the Ely. The ore is first-class slate. Six men are employed in it on contract. Its length from surface down is 650 feet. The plant is the one formerly used at old No. 5. The Ely and the Gibson are 100 feet nearer together at the bottom than at the top.

From the Gibson north, the pits were numbered from 1 to 10; but they are no longer all of them worked as separate pits. The ore from Nos. 1 and 2 is taken now to No. 6 shaft. It will be remembered that No. 5 and No. 6 pits are upon each side of a double-cage shaft. To reach No. 1, a skip-road has been made, going down to the eighth level, where it turns east, going on an incline of 24 degrees for 200 feet to No. 1 vein, where it bends to the right, making a horizontal angle of 50 degrees, going thence down in the ore. They are preparing to make still another level in the skip-road, to the left, to comply with the conditions of working at the greater depth. I rode up in the skip around these curves, and found it went very smoothly. No. 1 shaft is still lowered for a pump-shaft and also used for timber. The ore in No. 1 is from 8 to 10 feet wide. I found them stoping in the ninth level, and sinking for a new lift. Coming up the curving shaft to the eighth level, and passing through No. 6 pit, we pass through a chamber 60 feet wide running to No. 7. The ore-body is 400 feet long. There is both black ore and slate ore. The lenses are parallel, and have continued so from the surface down. The black ore lens runs out before reaching No. 7, leaving only slate. In No. 7, the black ore of No. 6 continues, and there are both slate ore and black ore on toward No. 8. The water is taken up No. 1 by plungers—200 and 250-foot lifts. Large well-supported cisterns receive the water at each lift.

The ore from Nos. 3, 4, and 5 goes to No. 6, which makes No. 6 the largest producing pit in the mine. No. 5 is now called the inclined shaft. No. 7 pit is 270 feet long and 12 feet wide. The shaft dips at 80 degrees west. It is down to the tenth level, 700 feet deep. No. 6 shaft is 820 feet long. There are several minor pits working, to the north of No. 7, which are similar to the Gibson, in which they hoist with bucket; one, a small lens, 7 feet by 50 feet slate ore. It is trammed to No. 7.

No. 8, independent pit, is 200 feet long, mostly north of shaft. Average width of ore, 10 feet slate ore, best quality, down to eighth level. No. 9, another independent pit, 6 feet by 55 feet. No. 8 is pitching toward No. 9, and they will probably come together. A small hoisting plant on top of the bluff is used with these shafts, working two drums, which operate No. 9 and the screen. No. 5 engine operates the No. 7 screen.

Ten years ago, the Rock engine-house was built, of stone, iron roof, 78 feet by 89 feet inside. In it are four 12-inch drums, Merritt's external friction gear, also electric light engine; and three boilers operate Nos. 5, 6, 7, and 8 shafts.

The new brick engine-house, farther south, is 58 feet by 78 feet; also four 12-foot drums, 7½-foot face, same make, carry 2400 feet 1 inch rope; 2 engines, each 20 inches by 30 inches. The machinery at the Republic, the Lake Superior, and a few others, is not surpassed, and probably not equaled, by that found in any other iron mines in the world. The mining plant at our Lake Superior iron mines is said, on the authority of the best experts, to be the most effective and powerful possessed by any iron mining region on the globe; and of these there is none better than that at the Republic.

The Kingston pit, away to the north of the river, has been abandoned. The ore is not salable now.

The product of the several pits from December to November, 1885, the average force employed being 700 men: Morgan, 37,117 tons; Pascoe, 30,529 tons; Ely, 31,719 tons; Gibson, 2535 tons; Nos. 1 and 2, 25,112 tons; Nos. 5 and 6, 50,807 tons; No. 7, 26,942 tons; No. 8, 19,614 tons; No. 9, 2010 tons; total, 226,385 tons.

The product for each year is as follows:

Year.	Tons.	Year.	Tons.
1872	11,025	1880	235,387
1873	105.435	1881	233,651
1874	122,639	1882	235,308
1875	119,726	1883	15 ,565
1876	120,045	1884	277,734
1877	165.830	1885	249,070
1878	176,221		
1879	135,131		2,339,666

David Morgan, General Manager, Republic, Mich.; Peter Pascoe, Superintendent, Republic, Mich.; W. D. Rus, Secretary, Cleveland, Ohio.

The Dynamite Industry.—It is stated that the scheme for fusing the various dynamite manufactories is approaching realization. Owing to this, the shares of the Hamburg companies have gone up in value of late.

Mansfelder Kupferschiefer Bauende Gewerkschaft.—Owing to the decline in copper and silver prices, some 4000 workpeople have been discharged from these mines since the beginning of the year, and further discharges are said to be imminent.

The Chili Saltpeter Trade at Hamburg.—The stocks are only moderate in amount, being at the end of May 27,000 tons, against 40,000 tons at the same period of 1885. This improved position of the market, taken in connection with the certainty that no large shipments need be expected, has given a better tone to business. Prices have been somewhat better.

DRY ORE CONCENTRATION.

Written for the Engineering and Mining Journal by John Heard, Jr., M.E.

The subject of pneumatic concentration (in which air is used as the fluid medium in lieu of water) has often been treated in scientific papers rather as a Utopian solution to an impossible problem than as an accomplished fact; as such, it has usually been rather irrationally condemned on purely theoretical grounds, because the only experiments that have been systematically carried out and recorded in Europe have proved failures. In America, good work has been done in this direction (but few records of this work can be found in our printed annals), and it seems as though it were time to condense in a single article the most important data already published, and to add to these such as have been obtained since, but which have not yet been placed on record. These data are all lamentably incomplete, but they are the only ones that can be obtained.

The space allotted to this article will not allow of a recapitulation of the theoretical laws that led to the experiments made in this department of concentration, nor of a more extended statement and study of the numerous experiments attempted. For the same reason, it would be impossible to describe the different machines constructed by English and American engineers who have grappled with the problem, and the lack of reliable data would, in most cases, invalidate the claims of their inventors, which must be considered more or less visionary until they have been substantiated by tabular statements of results achieved in practical working.

Three principles have been applied in pneumatic concentration, and may briefly be stated as follows:

A. Horizontal continuous currents.
B. Vertical continuous currents (aspiration and blast).
C. Vertical intermittent currents.

The objection to the practical success of the first two principles is, that the action of the current is too brief a one, and that the ore particles interfere with one another, while there is no second chance of correcting the defective work at the outset. In the application of the third principle, however, each particle of ore is acted upon several hundred times before reaching the "waste" and "heads" compartments.

It may be affirmed that there are known to-day only two machines (both jigs) that may claim consideration by practical men who have a dry concentration to deal with. The one is the invention of Mr. S. R. Krom, of New York, a development, as is also Paddock's machine, devised by Chubb, who first applied the principle of *intermittent* puffs of air. The second was devised and constructed by Mr. T. H. Paddock, of St. Johnsbury, Vermont; and the figures given below should convince even the most prejudiced antagonists of dry concentration that the separation of ores from their gangue, and of ores of different densities from one another, can be effected simply, cheaply, and thoroughly; and that this machine is really a workman's tool. All other machines (*not* jigs with intermittent currents of air) have given results that must condemn them, just as, years ago, all the apparatus devised in Europe and based on other principles were condemned by their own work.

S. R. Krom's jig has been fully described in Dr. R. W. Raymond's Reports for 1876, page 429, and on page 427 we find the following table, by Mr. T. G. Negus, of results obtained on this jig at the Star Cañon mill, Nevada:

66,800 pounds of ore from De Soto mine, assay $72.24			$2,412.81
Mineral No. 1, 1,013 pounds, assay $722.71	$366.04		
No. 2, 1,092 " " 1,187.57	648.40		
No. 3, 515 " " 1 204.54	365.35		
Dust from bin, 11,998 " " 138.17	828 88	2,148.67	
Or 89·05 per cent saved.			
38,150 pounds Sheba ore, assay $56.72			$1,041.93
Mineral No. 1, 1,072 pounds, assay $441.09	$236.41		
No. 2, 1.077 " " 559.86	301.48		
No. 3, 644 " " 780.40	251.28		
Dust from bin, 2,881 " " 96.56	139.09	9 28.26	
Or 86 per cent saved.			
3260 pounds Seminole ore, assay $4.84			$7.88
Mineral No. 1, 55 pounds, " 32.32	$0.88		
No. 2, 49 " " 86.87	2.12		
No. 3, 48 " " 135.10	3.24	6.24	
Or 80 47 per cent saved.			

In the above table of treatment of De Soto ore, 11,998 pounds of dust, valued at $828 88, are counted in with the concentrates as if they had also passed over the jigs, which does not seem to have been the case. It is true that they are *available*, but the tailings might, on similar ground, be said to be on hand. Leaving them out, we see that 66,800 pounds of ore produced 11,998 pounds (= 18 per cent) of dust that actually was collected. If we had figures on the quantity of tailings, we should be able to see how much dust had been produced in all, how much was lost in *poussière perdue*, and how much in tailings. As it is, the jigs returned $1319.79 out of $2412.81, or 54·7 per cent of value of the ore before crushing. This corresponds to 82·7 per cent of value of material actually treated by the jigs.

By applying the same calculations to the Sheba ore, we have the following figures: Dust produced and collected, 7·6 per cent out of $1081.93; the jigs returned $789.17, or 72·94 per cent of value of ore before crushing, or 83·7 per cent of value of material jigged.

In his article in the ENGINEERING AND MINING JOURNAL, February 10th, 1883, Mr. Krom gives the following figures of results obtained at the Manhattan mill:

FIRST RUN.

			Value.
A. 88,151 pounds of ore, assaying $20.21			$1,288.16
		Value.	
Mineral No. 1,	3,456 pounds, assay $84.82	$146.56	
No. 2	2,584 " " 207.35	353 36	
No. 3,	1,322 " " 204.21	159.96	
Granulated dust,	7,353 " " 58.11	?10.21	
Chamber "	6,484 " " 48.69	157.85	1,027.94
Loss in tailings			$260.22
Percentage saved, 79·7.			

B. 31.823 pounds of ore, assaying $25.12			$399.69
Mineral No. 1,	1,550 pounds, assay $100.53	$77.81	
No. 2,	1,309 " " 146.63	95.66	
No 3,	771 " " 120.93	46.61	
Granular dust,	3 374 " " 57.13	79.50	
Chamber "	2,283 " " 36.23	41.35	340.93
Loss in tailings			58.76
Percentage saved, 85·3.			
C. 102,228 pounds of ore, assaying $82.20			4,200.42
Mineral No. 1,	5,832 pounds, assay $281.15	$819 83	
No. 2,	5,413 " " 413.12	1,116.04	
No 3,	2,967 " " 375.43	556.95	
Granular dust,	13,428 " " 147.63	990 98	
Chamber "	7,341 " " 109.95	408.75	3,887.55
Loss in tailings			312.89
Percentage saved, 92·55.			

In the above tables, the dust figures are given, and their contents added to the saving of the jigs. It is not stated what the difference is between granular and chamber-dust, whether the granular dust was jigged, or in what manner the granular was separated or separately obtained from the chamber-dust. It is presumable that neither kind of dust was really treated by the jigs, and if we deduct them from the jig returns, we obtain the figures given below. If ores of a grade corresponding to the assay of these dusts could not be profitably treated at the mine or bear transportation, they may be considered as thoroughly lost as the tailings.

A	88 151 pounds of ore yielded	13,837 pounds of dust,	or 15·7 per cent.
B	31.823 " " "	5.657 " "	11·5 " "
C	102,228 " " "	20,769 " "	20·3 " "

Of the stuff treated, the jigs returned, exclusive of dust—

A	88.151 pounds of ore, valued at $1,288.16, yielded	$659.88,	or 51·23 per cent.
B	31,823 " " "	339.69 "	220 08, or 55·66 " "
C	102,228 " " "	4,200.42 "	2,492 28, or 59 64 " "

Percentage of value of ore contained

A.	In concentrates, 51·23.	In dust collected, 28·57.	In tailings, uncollected dust, 20·3
B.	" 55·06.	" " 30·23.	" " 14·7
C.	" 59 34.	" " 33·32.	" " 7·45

of value of uncrushed ore and to 72·5 per cent of value of material jigged; of value of uncrushed ore and to 72·9 per cent of value of material jigged; of value of uncrushed ore and to 89·0 per cent of value of material jigged.

Mr. A. Trippel, in the ENGINEERING AND MINING JOURNAL of July 28th, 1877, gives the following figures on work done by Mr. Krom's machines at the Manhattan mill.

In 61 working days of 10 hours, 1210 tons were crushed and concentrated on eleven Krom jigs, of which 3 were used to work over the middlings. The dust produced amounted to 17 per cent of the ore, and the concentrates to 4·9 per cent. The ore assayed on an average $29.16; the dust, $46; and the concentrates, approximately, $250.

The tailings assayed, for

Ore averaging from $15 to $18.85	$10.98	Ore averaging from $28 to $30	$13.49
" " " 20 to 22.00	12.95	" " " 30 to 33	12.93
" " " 23 to 24 00	12 38	" " " 33 to 36	14.44
" " " 25 to 26.00	11.79	" " " 36 to 39	14.26
" " " 26 to 28.00	12.86	" " " 39 to 50	14.49

Average assay of tailings for 12 months' work in 1875, 9·3 per cent of value of ore. These are the only figures from which we can calculate the capacity of Krom's jig, and the details on the working are not sufficiently full to enable us to judge whether they are favorable to the jig or the reverse.

In 610 hours, 11 jigs treated 1210 tons, less 17 per cent dust, or 1005 tons, which gives for each jig an hourly capacity of 300 pounds of ore devoid of dust.

The original Paddock air-jig was described by Prof. John A. Church, in a paper read before the American Institute of Mining Engineers at the September meeting of 1879. Since that time, it has been modified and simplified.

The present machine consists of an inclined, adjustable, stationary deck, over which the ore passes from an adjustable hopper at the upper end to the discharge at the lower. The fluid, air, is forced through the cloth surface of the deck by a bellows below it, whose blast is regulated both as to quantity of air and number of strokes by an ingenious adjustment (a duplex eccentric) on the driving-shaft.

The action of the jig is inclosed in an air-tight box, and consists of a horizontal shaft, parallel with the long side of the deck, and furnished outside with a driving and a loose pulley, and inside with a fly-wheel. The motion is communicated to the lower plane of the bellows inside the air-tight box by means of two vertical rods whose displacement is actuated and regulated by a duplex eccentric, the disks of which are graduated so as to facilitate accurate adjustment, while wear on the bearings is much diminished by a rubber buffer at the foot of each rod. The bellows is horizontal, discharging through a circular neck, furnished with horizontal check-valves (to prevent any suction of the fine ore particles through the cloth), into the air-chamber below the deck. Around the neck are two beveled rings, forming an air-tight friction-joint, and free to revolve horizontally, so that any inclination, whether longitudinal or lateral, can be given to the deck by turning the rings around on their axis.

The deck consists of a cast-iron grating, through which the air passes freely from the air-chamber, and over this the working-bed, a piece of broadcloth, is stretched tightly and clamped down by vertical lateral bolts on the frame of the jig-trough; immediately above the bed, and firmly pressed against it, is a grating of $\frac{1}{12}$-inch brass strips, on edge, running parallel with the diagonal of the bed; these strips are from $\frac{1}{8}$ inch to $1\frac{1}{2}$ inches apart, according to the size of material treated, and from $\frac{1}{8}$ to $\frac{1}{4}$ inch high. Above this is another grating of zinc strips $\frac{1}{12}$ inch thick, $2\frac{1}{2}$ inches high, and from $\frac{1}{8}$ inch to $\frac{1}{4}$ inch apart, running parallel with the other diagonal of the deck, but not quite across to the opposite side, where a 3-inch longitudinal trough guides the waste, scraped off by this grating from the top of the ore-bed, down the side toward the waste discharge.

The discharge is at the open end of these two gratings at the lower extremity of the deck (inclined laterally toward the "heads" side), and the ore passes out over an inclined plane divided by two adjustable fin-

gers, which separate the outflowing product into "heads," "middlings," and "tailings."

A hopper, into which the ore is fed, feeds it to the machine, and its discharge can be regulated by means of a vertical sliding gate. As some ores require a longer treatment than others, the length of the ore-bed can be shortened or lengthened by moving the hopper forward or back. Above the working-bed is a hood, or canvas covering, through which the dust is drawn off by means of an exhaust-fan, which answers for several tables.

The ore is fed into the hopper, which distributes it laterally across the upper end of the table; the lighter particles come to the surface and follow the scraper grating across to the trough on one side, along which they travel toward the discharge. The heavier particles sink to a lower level and are guided in an opposite direction by the brass grating toward the "heads" side. The speed will vary for coarse sizes or fine from 400 to 500 revolutions or puffs per minute; the stroke from $\frac{5}{8}$ inch to $\frac{1}{16}$ inch; the length of the ore-bed from 20 inches to 30 inches. There are no wearing parts (as there is no attrition), and the power required is merely nominal. The machine is adjustable throughout; the length of the ore-bed, the length of the stroke, the number of revolutions, the longitudinal and lateral inclination, the width of the discharge-gates, are all factors that can be varied to suit the ore.

The former style of machine was used at the Blue Hill mines, Me., during several months until the ore gave out, and the following figures as to its working there may prove interesting. The material treated was a chloritic slate carrying copper and iron pyrites, galena, and some silver. The ore, which was of very low grade, was crushed between 60 and 100 mesh. The average copper contents were 1·32 per cent Cu, and the average of silver 4 ounces per ton; the ore was first separated from the gangue and the heads run over again to separate the galena from the other sulphurets. Mr. R. E. Hills, State Assayer, gives the following figures:

September, 1879.

Stock.	Product.	Tailings.	Stock.	Product.	Tailings.
4·2 oz. Ag.	83·4 oz. Ag.	1·6 oz. Ag.	5·0 oz. Ag.	87·0 oz. Ag.	0·8 oz. Ag.
2·2 "	37·8 "	0·8 "	4·6 "	102·0 "	1·1 "
4·0 "	70·2 "	0·7 "	4·0 "	32·4 "	1·2 "
3·2 "	65·4 "	1·2 "	3·1 "	18·0 "	1·2 "
2·0 "	76·2 "	1·0 "			

According to Mr. C. W. Kempton, the copper in stock was all below 2 per cent, and the following are ten assays of tailings: 0·23 per cent, 0·24 per cent, 0·28 per cent, 0·29 per cent, 0·30 per cent, 0·35 per cent, 0·38 per cent, 0·40 per cent, 0·41 per cent, 0·45 per cent.

No figures are given regarding the copper contents of the heads.

One hundred and ten tons from the Goldsboro' mine, assaying about the same as the Blue Hill ore, were treated, and the galena then separated from the other sulphurets, the heads assaying 78 per cent Pb and 366 ounces Ag. No other figures are at hand. Considering the remarkably low assay of the material treated, these results are very satisfactory.

The following tables of working of Paddock jigs at the Frisco mill, Utah, taken from the books kept by the chemist of the laboratory at the company's smelting-works, are still more interesting. The ore came from the Carbonate mine, and contained limestone, quartz, dolomite, heavy-spar, galena, silver, etc. About thirty tons a day have been treated regularly for the last five years in the proportion of four tons of stock to one of concentrates. These figures date back to May and June of 1881, and Mr. Bigelow, one of the owners, told me recently that they exactly represent the work done at the mine to-day. The middlings were run over a second time with results as given below:

Date.	Size.	Stock. P. c. Pb.	Stock. Oz. Ag.	Middlings. P. c. Pb.	Middlings. Oz. Ag.	Product. P. c. Pb.	Product. Oz. Ag.	Tailings. P. c. Pb.	Tailings. Oz. Ag.
May 25, 1881.	10	13·8	34·56	....	....	41·4	102 80	trace.	trace.
	20	12·7	32·95	2·3	3·64	44·6	104·85	"	"
	35	11·4	29·16	2·9	8·02	51 5	128·76	"	"
	50	10·2	26 10	....	....	45·0	111·55	"	"
	80	11·7	33·68	....	....	51 7	121·18	"	"
	110 @ 140	15·0	39·07	....	....	69·4	169 93	1·3	3·20
	(Rents in the blanket of No. 110 machine.)								
June 4	10	15·07	33 68	....	....	38·5	88·65	0·3	1·16
	20	9·0	22·16	4·0	10·49	36·4	81 80	trace.	trace.
	35	11·9	26·24	8·2	20·26	58·0	139·30	0·2	0·82
	50	8·6	19·24	....	....	47·6	115·05	0·1	0·43
	80	7·5	17·35	....	....	45·9	101·66	trace.	0·58
	110 @ 140	11·3	26·10	....	....	51·0	124·82	trace.	trace.
June 10	10	14·3	31·64	....	....	30·0	68 94	"	"
	20	9·6	22·30	2·3	7·14	45·6	105·86	"	"
	35	6·5	15·45	3·7	7 72	44·6	107·91	"	"
	50	8·9	21·72	....	....	30·1	88·21	"	"
	80	9·0	21·57	....	....	43·0	97 70	"	"
	110 @ 140	14·1	32·37	....	....	57·2	134·30	"	"

Date.	Size.	Stock. P. c. Pb.	Stock. Oz. Ag.	Middlings. P. c. Pb.	Middlings. Oz. Ag.	Product. P. c. Pb.	Product. Oz. Ag.	Tailings. P. c. Pb.	Tailings. Oz. Ag.
June 15.....	10	6·7	15·86	....	....	19·0	41·99	trace.	trace.
	20	7·8	18·65	1·8	4·37	35·4	91·28	"	"
	35	5·6	12·68	1·0	3·06	38 2	83·99	"	"
	50	7 6	17·20	....	....	37·05	102·95	"	"
	80	10·5	27·84	....	....	40 9	100·47	"	"
	110 @ 140	12·5	30·91	....	....	42·3	118·70	"	"
June 20.....	10	14·8	32·66	....	....	22·0	60·66	"	"
	20	7·3	21·28	4·5	8·60	41 9	108·39	"	"
	35	8·0	25·08	4·7	15 30	33·3	83·41	"	0·58
	50	11·4	38·34	....	....	55·5	136·20	"	2·18
	80	9·9	28 72	....	....	48·4	141·30	"	trace.
	110 @ 140	15·8	42·14	....	....	49 7	160·70	"	"
June 23	10	12·1	32·66	....	....	26·7	54·67	"	"
	20	12·8	31·08	2·7	7·87	47·6	107 61	"	"
	35	7·0	20 84	11·4	23·47	50·7	110·24	"	0·58
	50	10·2	24·74	....	....	58·8	138·54	"	trace.
	80	15·1	34·85	....	....	46·8	107·76	"	"
	110 @ 140	11·2	29·45	....	....	50·5	148 30	"	"

WORKING UP OF MIDDLINGS.

Date.	Size.	Stock. P. c. Pb.	Stock. Oz Ag.	Product. P. c. Pb.	Product. Oz Ag.	Tailings. P. c. Pb.	Tailings. Ag.
May 25	20	2·3	3 64	28 7	47·38	trace	trace
	35	2·9	8·02	37·0	78·16	"	"
June 4.....	20	4	10·40	33·7	70·86	0·2	0·72
	35	8·2	20·26	47·0	92·70	trace	1·16
June 10.....	20	2·3	7·14	20·5	49·58	"	trace
	35	3·7	7·72	26·3	55·70	"	"
June 15.....	20	1·8	4·37	19·9	43·60	"	"
	35	1·0	3·06	14·0	36·59	"	"
June 20.....	20	4·5	8·60	27·0	72·03	"	"
	35	4·7	15·30	41·0	100·03	"	0·87
June 23.....	20	2·7	7·87	35·4	77·14	"	0·43
	35	11·4	23·47	44·6	107·32	"	trace

The high figures of middlings produced, for instance, on June 23d, in the treatment of 35-mesh stock, may seem inconsistent with the regular working of the machine as with the low figures of the tailings assay. It should be remembered, however, that a simple displacement from left to right of the index on the tail-board, which separates the heads from the middlings, will cause a certain proportion of the former to run into the middlings compartment, while the tailings are in no way affected, as long as the index that separates them from the middlings is not displaced.

These figures are in themselves sufficiently explicit, and in justice to the machines it should be said that the mechanical conditions of working were not the most favorable.

Mr. William Hooper, the able superintendent of the Graphite dressing-works at Ticonderoga, has treated 100 tons of iron ore a day, *unsized*, on a single machine with a modified deck, and found the results very satisfactory; while after a year's uninterrupted work, the machine was in perfect order and not a single part had required change or repairs. The working bed of broadcloth will, according to Mr. Hooper, last over a year of continuous work. He has also separated blende from galena, the blende being perfectly clean and only a faint proportion (less than 1 per cent) of blende remaining in the galena; he says that he can separate on the Paddock jig any materials whose difference of s. g. is greater than 1¼.

Mr. William Graves writes on July 8th, 1884, that he is treating ore from the Washington avenue mine, at Penn Gulch, Boulder County, Colo., and is obtaining as rich a product with the Paddock jig concentrating 4 to 1, as he did with the same stock concentrating 10 to 1, on the Frue vanner.

The capacity of each machine will naturally vary with the closeness of the work and the fineness of the ore. Fine sizes will run at the rate of from 1000 to 1200 pounds an hour; coarse sizes (up to 35 mesh) at the rate of from 1500 to 2000 pounds an hour. Sizes above 140 mesh do not give satisfactory results.

Owing to an unfortunate fall in the shaft of his mine over two years ago, Mr. Paddock has been laid up with a broken hip, and has, hitherto, been unable to accept various orders for dry concentrating plants that came from Mexico and Central and South America. If it were not for this accident, we should have fuller data on the results of dry concentration. He is now, I am glad to say, in good health. The fact that sulphurets can be so easily separated *dry* from their gangue, and *a fortiori* gold and heavy metallic particles from their sand, is of great importance to Mexico, where such vast dumps of poor ore are lying idle to-day. It must also be interesting to mill superintendents who have to roast dry, and are annoyed by a fine wet stock that must be dried before charging, and sometimes broken again; or charged wet, which often causes the ore to cake in the furnace, and renders a perfect roast difficult.

The separation of zinc-blende from heavier sulphurets is also important, as a number of mines (in Northwestern Mexico at least) carrying 50, 60, and 100-ounce material are lying idle because the proportion of zinc, amounting often to 40 per cent, renders impossible the treatment of the ore by any process practicable in such localities. The loss of silver in the zinc-blende is an objection (but I have usually found it very poor in silver in that part of the world), as is also the fact that a certain amount of the silver is present in minerals of a density not much higher than that of zinc-blende. But a single experiment, carefully conducted, would at once show whether the separator would prove profitable or not for any particular ore.

Zinc-Works Convention.—A convention of European zinc-works enters into force on July 1st. It will restrict production 5 per cent. Since the demand for zinc is on the increase, there should be a rise in prices. *Kuhlow's* says the Silesian Zinc Smelting-Works have not joined the Convention of Rhenish-Westphalian Works.

The Report of the Suez Canal Company.—The report recently read by M. de Lesseps shows the receipts of 1885 to have been 65,049,945 francs, and the expenses 31,021,178 francs, leaving a profit of 34,028,767 francs, which allows a dividend of 60 francs 40 centimes. The return of traffic—3624 ships, of 6,335,753 tons—exceeded by 340 ships and 464,253 tons that of the previous year. The passengers numbered 205,951, against 151,916 in 1884, and 43,813 of them were English. The average time of transit was forty-three hours, and though the twelve days' interruption caused by a dredger being run down led to an assemblage of 123 ships, all these got through in three days. Liberty of traveling by night with the electric light had been taken advantage of by several of the Peninsular and Oriental Company's steamers, one of which thus made the transit in seventeen hours fifty minutes. Traffic has not suffered from the economic depression, because the reduced dues have allowed the creation of fresh enterprises or the extension of existing ones.

PATENTS GRANTED BY THE UNITED STATES PATENT-OFFICE.

The following is a list of the patents relating to mining, metallurgy, and kindred subjects, issued by the United States Patent-Office.

GRANTED JUNE 22D, 1886.

343,978. Bagasse-Furnace. William Barry and John R. Calder, Minden, Neb.
343 995. Gas Apparatus. Erazm J. Jerzmanowski, New York City.
343,996. Process of Producing Illuminating Gas. Erazm J. Jerzmanowski, New York City.
344,004. Quartz-Breaker and Pulverizer. Emory I. Nichols, San Francisco, Cal.
344,022. Ore-Separator. David G. Weems, Baltimore, Md.
344,060. Center Seal for Gas-Works. Gleason F. Starkweather, Evanston, Assignor to Nathaniel S. Bouton, Chicago, Ill.
344,076. Hand-Power Rock-Drill. William Brady and Daniel Fitzpatrick, Virginia City, Nev.
344,088. Valve for Regulating the Flow of Gas in Mains, etc. Edwin B. Donkin, Bermondsey, County of Surrey, England.
344.104. Continuous Rolling-Mill. Robert Heinle, Altoona, Pa.
344,117. Boiler-Covering. Matthew Keenan, Armagh Works, Tredegar Road, North Bow, County of Middlesex, England.
344,131. Automatic Gas-Regulator. James M. Palmer, Boston, Mass.
344,137. Operation of Oil Wells. Charles N. Royce, Phillipston, Pa.
344,140. Process of Making a Sulphate of Alumina Compound. Conrad Semper, Philadelphia, Pa., Assignor to Harrison Brothers & Co., same place.
344,144. Center Seal for Gas-Works. Gleason F. Starkweather, Evanston, Assignor to Nathaniel S. Bouton, Chicago, Ill.
344,169. Ore-Conveyer. John Q. Day, Red Cliff, Col.
344,177. Fire and Water-Proof Paint. Charles S. Fowler, Lake City, Minn.
344,184. Apparatus for Making Ammonia. Deming Jarves, Detroit, Mich.
344,258. Bed for Crushing-Rolls. Daniel Dunne, Salt Lake City, Utah, Assignor to Enos A. Wall, same place.
344,266. Mode of Operating Oil-Wells. Montrose Gotham, Centerville, Pa.
344,317. Furnace. Evan E. Jones, Pittsburg, Pa.

FURNACE, MILL, AND FACTORY.

Messrs. Huston, Perrin & Co., No. 57 Olive street, Boston, are the sole New England agents of the Dickson Manufacturing Company, of Scranton, Pa., and carry a very complete stock.

Jones & Laughlin's nail factory, at Pittsburg, Pa., has resumed operations after thirteen months' idleness. All the other Pittsburg nail factories will resume soon at the amalgamated scale.

The damage by the recent explosion at the Glendon Iron Company's No. 2 furnace, Easton, Pa., is greater than at first supposed. The cause of the explosion is said to have been a leaky water-pipe, which had not been discovered until after the accident. If the stack must be torn down, the loss to the company will be large. No. 5 furnace, which is now ready for blast, will be started if No. 2 is to be demolished.

The plant of the Youngstown Steel Company, Youngstown, Ohio, which has been idle for a long time, has resumed operations, after having several changes made. The product, which will be about twenty tons daily, will be shipped to the Spang Steel and Iron Company, Pittsburg, for reduction.

At the recent annual meeting of the Columbia Rolling-Mill Company, Jersey City, New Jersey, it was decided to make arrangements for the purchase of lots in Jersey City, to erect a building of brick two stories high covering six lots.

The Pratt Coal, Coke, and Iron Company has begun work on its new furnace plant on Village Creek, Ala.

The Old Dominion Nail and Iron-Works, of Richmond, Va., contemplate building a Bessemer steel plant at an early day. The contracts have not been given cut yet.

J. P. Witherow, of Pittsburg, has just signed a contract for building a large blast-furnace at Sheffield, Ala., for the Sheffield Iron Company, to be finished on the first of June, 1887. Sheffield is a new town on the Tennessee River, opposite Florence, and on the north side of Mussel Shoals. This is the first plant of any kind ever erected there. The company is a branch of the Sheffield Land and Improvement Company, whose capital stock is $2,000,000. The plant will consist of a blast-furnace 75 feet high, with a 17-foot bosh. There will be three Whitwell fire-brick stoves, 18 by 50 feet. The chimney will be lined to 8 feet clear way and 160 feet high. There will also be two blowing-engines, and a complete equipment of Heine safety water-tube boilers.

Reports from Birmingham, Ala., show great activity in that region. About nine new furnaces are now under way. The Pioneer Manufacturing Company has broken ground for its first furnace, of 100 tons capacity, some three miles from that city, and for 150 coke-ovens and 50 brick tenement-houses. The De Bardeleben Coal and Iron Company has resumed work at a new site, some two miles nearer town than the old one—that is, some 10 miles out. It contemplates two furnaces to make about 100 tons each.

The Otis Iron and Steel Company, Cleveland, Ohio, has just finished the top section of the anvil-block for a 15-ton hammer, now building by the Morgan Engineering Company, of Alliance, Ohio, for Miller, Metcalf & Parkin's Crescent Steel-Works, Pittsburg. The section weighs 55,170 pounds. This is probably the heaviest steel casting ever made in this country.

The Roane Iron Company, of Chattanooga, Tenn., to which we referred last week, is pushing work vigorously, and will at once convert its works at Chattanooga into a steel plant for the manufacture of Bessemer steel. The capacity of the works will be about 140 tons a day. It is the intention of the company to utilize one or more of the furnaces in this district to smelt the Cranberry ore; but it will erect a furnace as soon as practicable, which will be run exclusively for making its own metal. The works will be under the immediate control of Mr. J. S. Goldstein.

Master Dallas, of the Philadelphia & Reading Company, has reported to the courts that the Pennsylvania Steel Company's claim for $92,468.47, due for steel rails, be declared a prior lien to the Reading mortgages and permanent incumbrances.

LABOR AND WAGES.

The new scale agreed upon by the joint committee of the manufacturers of Pittsburg and Cincinnati and of the Amalgamated Association went into effect on the 1st inst. for the ensuing year. In the Pittsburg and Cincinnati districts, the firms are not required to sign the scale individually, as they are governed by the action of their representatives at the conference. In these two districts, both sides are satisfied with the terms of its settlement. The proprietors of five rolling-mills at Youngstown, Ohio, have, it is stated, refused to sign the scale.

At the Brooke Iron Company's sheet-mill at Birdsboro', Pa., the helpers all stopped work on the 1st inst., alleging that the amount of material they were required to lift was entirely too heavy. Their quitting work necessitated the stoppage of the entire mill. There is no trouble about wages.

The great nail mill strike at Belleville, Ill., has finally come to an end, the settlement at Pittsburg of the wages question proving satisfactory to both the nailers and operators, and the mill has started up.

The Executive Board of the Miners and Laborers' Amalgamated Association met in Pottsville, Pa., on the 30th ult. The contract system was discussed, and the rigid penalties for violation of the rules adopted at the last meeting were ordered to be enforced in several cases. The State relief fund system was approved, as was the resolution of the State Convention, prohibiting districts from striking without first obtaining the consent of the State Executive Board, composed of representatives of the anthracite and bituminous regions, in equal proportions.

The Rochester mines at Dubois, Pa., have resumed operations with a small force of men at the old rate of wages, thirty-five cents a ton. Bradford police guard the mouth of the mines.

The long-pending troubles between the proprietors of the Philadelphia Rolling-Mills, at Philadelphia, Pa., and their employés have come to a crisis. There has been a general shut-down in the four large concerns in Philadelphia, known as the Philadelphia Rolling-Mill Association. The men demand the two-cent rate.

TRANSPORTATION NOTES.

The Vosburg tunnel of the Lehigh Valley Rail road, four miles above Tunkhannock, Pa., was formally opened on the 27th. It cost $1,000,000, and was three years building, during which five lives were lost. The tunnel shortens the road by four miles and 905 feet.

The statement of the Philadelphia & Reading Railroad and Coal and Iron Companies for May, 1886, as compared with the same month in 1885, shows an increase in gross earnings of $69,253, an increase in expenses of $229,943, and a decrease in net earnings of $159,990. The statement for the six months ended May 31st, 1886, as compared with the same period in 1885, shows an increase in gross earnings of $959,053, an increase in expenses of $1,255,514, and a decrease in net earnings of $296,461.

The Norfolk & Western Railroad reports its gross earnings for the month of May as $235,700, the expenses $147,338, and the net earnings $88,362; an increase of $30,484, compared with the same month last year. For the five months to May 31st, the net earnings were $480,691, an increase of $92,052 as compared with the same period of 1885. The Cripple Creek extension of this railroad was formally opened on the 28th ult. The Cripple Creek penetrates some of the finest coal and lumber regions in Southwest Virginia.

Major Powell, Superintendent of the Geological Survey, in a report to the Secretary of the Interior, advocates a bill to facilitate the settlement and develop the resources of Alaska, and to open a commercial route between the United States and Japan. Major Powell says that a railroad is feasible over the vast intermediate territory, and that the difficulties to be overcome are not greater than have already been mastered in constructing the transcontinental roads already in operation. He says the distance from Northern Montana to Behring's Sea is 2800 miles. This distance, for convenience, he divides into three parts, as follows: First, from some point on the Northern Pacific Railroad in Montana to the head-waters of the Peace River; secondly, from the head-waters of the Peace River to the head-waters of the Yukon; thirdly, from the head-waters of the Yukon to some point on the shore of Behring's Sea.

COAL TRADE NOTES.

COLORADO.

The Ohio Creek Anthracite Coal Company has been organized; capital, $25,000; incorporators, J. F. Schoellkopf, W. L. Youle, John Hanenstein, David Roseman, Albert Ziegele, Herman Segnitz, Ph. Gaenslen; place of operations, Gunnison County.

ILLINOIS.

While boring for water on a farm near East Newell, a seven-foot vein of coal was struck at a depth of 128 feet. The strike is close to the Chicago & Eastern Illinois road. Steps have already been taken to put down a shaft.

OHIO.

The old Clark mine, at Chapman, which has been filled up with water for a number of years, is to be reopened. It is said that there is considerable pillar work there, and in the old Sprankle mine adjoining, which is to be worked also by this new company.

PENNSYLVANIA.

ANTHRACITE.

The Philadelphia & Reading Company's North Ashland Colliery, at Ashland, resumed operations on the 1st inst., after a suspension of fifteen months, caused by a fire in the mines necessitating the flooding of its workings. Great improvements have been made, and the shipping capacity has been greatly increased.

A terrible accident, by which one man was killed and two fatally injured, occurred at Turkey Run Colliery, at Shenandoah, on the 1st inst. A number of men were employed at what is known as stripping, and three men were working under a bank of clay about 18 feet in hight, when a large portion of it fell in upon them. One man was killed instantly, and two others were buried under the mass of clay, but were taken out alive but greatly injured.

A singular fatal accident occurred at the Black Diamond Colliery, near Minersville, on the 30th ult. Two miners were tapping the water from an old breast, when a great volume of water suddenly burst in, drowning both men and completely flooding the mine, rendering the immediate recovery of the bodies impracticable.

On the 30th ult., a cave-in took place at the No. 8 Stockton Colliery, near Hazleton, which damaged the tracks of the Lehigh Valley Railroad, which pass right over the ground.

The Old Forge Coal Company has been recently organized, with John A. Mears, President; J. Alton Davis, Secretary; and T. F. Crane, Treasurer. The company proposes to market its own coal, and can find a way to market it over the Delaware, Lackawanna & Western, the Erie & Wyoming Valley, or the Lehigh Valley. The tract of land, which will be the field of operation, consists of about 175 acres, near Duryea. The company will erect a breaker on what is known as the Old Grove tract, Luzerne County.

BITUMINOUS.

Webster Colliery, No. 2, owned by the Houtzdale Coal Company, has been sold to the Berwind-White Coal Company. This mine, it is said, averages about 15,000 tons a month.

TENNESSEE.

The Tabler-Crudup Coal and Coke Company, Daisy, will, it is said, open new shafts and enlarge operations at its mines.

WEST VIRGINIA.

The Thurmond Coal Company, recently incorporated at Staunton, Va., has secured coal lands on the south side of the New River, and will at once begin to open mines.

GAS AND OIL NOTES.

Exports of refined, crude, and naphtha from the following ports, from January 1st to June 26th:

	1886. Gallons.	1885. Gallons.
From Boston	2,863,284	3,805,897
Philadelphia	67,441,181	63,376,493
Baltimore	5,574,400	4,734,721
Perth Amboy	1,593,770	
New York	183,375,589	173,386,801
Total exports	260,848,224	245,303,912

KENTUCKY.

The Frankfort Heating Company has been organized at Frankfort, to drill for natural gas.

PENNSYLVANIA.

It is rumored that the Pittsburg Gas Company contemplates erecting a plant for carbureting natural gas and using it for illuminating purposes. The proposed plant is to have a capacity of 7,000,000 feet a day.

The Baden Gas Company and the Manufacturers' Gas Company have been granted the right to lay pipes in Alleghany City.

The Pennsylvania Natural Gas Company has com-

pleted the work of turning the gas from the wells at Canonsburg into its newly completed mains at Pittsburg.

The Washington Natural Gas Company started the drill last week on one of the new wells from which it contemplates supplying the People's Natural Gas and Pipage Company with fuel for Lower Alleghany. This well is located on the McCarrell farm, just near Hickory, and another will be started in a few days on the Parkinson lease, near the same place.

GENERAL MINING NEWS.

Ex-United States Senator N. P. Hill, and Mr. Richard Pearce, of the Boston & Colorado Smelting Company, of Argo, Colo., have visited Pittsburg, investigating natural gas and examining plans for new work. On account of location and railroad discriminations, the company has decided to locate at some central point, as St. Louis, Chicago, or Pittsburg, a refining-works. New smelters are to be located in Montana and Mexico, where the gold and silver will be concentrated, 20 tons of ore to one ton of resultant copper matte. This will be shipped to the central works and there refined and cast into bricks. This is also desired by the company as a central office, from which the affairs of the company in all its branches will be directed and managed. Mr. M. V. Smith, of Pittsburg, has received an order from this company for a test regenerative gas-furnace, to be erected at the works at Denver and there tested. On obtaining a satisfactory result, the furnace will be adopted for use in every one of the company's improvements.

AUSTRALIA.

RICH GOLD DIGGINGS IN THE KIMBERLY FIELDS.—Confirmatory news has been received, says the Sydney *Herald*, which shows that a considerable amount of payable gold has already been obtained, including nuggets averaging in weight from half an ounce to 190 ounces. Specimens have already reached Sydney. The gold appears to be but slightly water-worn, and can not have traveled far from the matrix. It is of good color, resembling that from the Palmer and Northern Queensland fields, and it brings a high market price. A rush has already set in from Western Australia and from New South Wales. Large numbers of diggers, storekeepers, and others have found passage around westward, while others from Victoria, New Zealand, etc., have arrived in Sydney, whence steamers are specially laid on, most of which will call at the Queensland ports *en route* to pick up additional miners. The two places of debarkation are Port Derby (King's Sound) and Cambridge Gulf.

Mr. Derby, a merchant, writing on March 30th, says: "About eight men have made their way in from the gold-fields. They report about forty men up there. They have come in to buy rations. It is going to be the largest field in Australia. All the men who are in have gold with them, but they are keeping it dark, and have only brought in enough for their wants. I bought eighty-four ounces from two men yesterday, twenty-two ounces from another, eleven ounces from another, and seven ounces from another. We hear of another party close to here that has 240 ounces with it, one piece weighing nineteen ounces. It is a beautiful sample of gold, quite as good as the Palmer gold. What we have purchased runs from five ounces to one ounce, the pieces being all water-worn except one parcel, which was evidently got on the surface from a rough leader. All I am afraid of is a big rush of men with no money."

The laboring white men demand 15s. a day for ordinary work, and it is very difficult to obtain the services of blacks. Chinese labor is also scarce at present. A few miles from Derby, Mr. Derby saw a number of alligators in a river, and he has seen snakes also very frequently, some of them being very long. He says that 150 miles of the 300 that divide Derby from the diggings is over a boggy track. The belief that the field will prove one of the most permanent and paying that has yet been discovered in any part of the world grows daily; and as it has been estimated by Mr. Hardman, the government geologist of Western Australia, that an auriferous area of country extending over some 3500 or 4000 miles exists, there appears to be ground for the opinion. Mobs of horses are got together for dispatch, and milch cows and cattle will be sent to the landing ports. Several hundred sheep are also sent to provide for temporary requirements. The latest information is a telegram from Perth, which states that a miner named Morgan has returned to Port Derby with a large quantity of gold, including a nugget weighing two and a half pounds of solid gold.

CALIFORNIA.

MONO COUNTY—BODIE DISTRICT.

BODIE CONSOLIDATED.—At the annual meeting, recently held in San Francisco, the following directors and officers were elected for the ensuing year: Directors, W. P. Willard (President), George I. Ives (Vice-President), John Kelly, Thomas Brown, A. Borland, W. H. King. George W. Sessions, Secretary; John Kelly, Superintendent.

BULWER.—The official report for the week ended the 21st ult. shows that the main uprise from the tunnel level is up 42 feet, carrying only a small stringer of ore. Stopes have also been started north and south from this rise, but the ore-streak, except for a few feet in the back of the drift, is small. The vein on the 400-foot level is wider and stronger than at any point above, and as soon as possible, without interfering with the stoping, a prospecting winze will be started, and if the improvement continues, preparations will be made for opening the 500-foot level from the standard shaft. They are breaking about 20 tons a day on the 200-foot level, and the stopes look well. They are also breaking some ore on the 100-foot level, Homestake ledge. This is a large ledge, carrying some fair milling ore. It must be assorted carefully and only the best sent to the mill. They have sent to the mill 276 tons of ore, and reduced 165 tons since the 16th inst. (time of starting the mill). They have had trouble with a broken clutch, leaky tanks and pans; therefore they did not run the mill to the full capacity.

STANDARD CONSOLIDATED.—During the week ended the 19th ult., 330 tons of ore were shipped to the mill. The Standard side of the mill is running well. Bullion on the 16th ult., valued at $6595.61, was shipped.

CANADA.

PROVINCES OF QUEBEC AND ONTARIO.

ANGLO-CANADIAN PHOSPHATE COMPANY, LIMITED.—This company, organized in London with a capital of £100,000 in 10,000 shares of £10 each, in 7500 preference s ares and 2500 deferred shares, is formed to acquire 6908 acres of carefully selected land in the Provinces of Quebec and Ontario, Dominion of Canada, containing valuable deposits of apatite or phosphate of lime, and to develop and work the same. The Otty Lake mine is included in this purchase. Capt. Robert C. Adams, of Montreal, will serve as managing director.

CENTRAL AMERICA.

HONDURAS.

NEW ORLEANS & HONDURAS.—This company has been incorporated under the laws of Louisiana, with a capital stock of $50,000, with M. G. May as President; Pearl Wright, Vice-President; and F. F. Hilder, Secretary and Treasurer. The object of the company is to develop mining property in Honduras.

COLORADO.

CLEAR CREEK COUNTY.

REPUBLICAN MOUNTAIN.—At the annual meeting, recently held in London, it was shown that the profit and loss account for the nine months' working shows that the proceeds of ore sales and royalties amounted to £3292 6s. 7d., and that, after deducting the cost of stoping and expenses, a balance of profit remains amounting to £927 16s. 7d. The erection of concentrating works has been deferred for the present, the capital necessary not being available.

CUSTER COUNTY.

BASSICK.—The Supreme Court of Colorado in the case of the Union Iron-Works *vs.* the Bassick Mining Company granted a temporary injunction upon filing bond in penalty of $50,000, conditioned to pay all damages occasioned by issue of writ, bond to be approved by clerk of this court, and order granted restraining the sheriff from selling the property for ten days from June 24th.

GILPIN COUNTY.

BOBTAIL-GREGORY CONSOLIDATED.—This company is running 50 stamps of its 125-stamp-mill.

BONANZA AND UNION TUNNEL COMPANY.—The new 25-stamp mill has started up on ore from the Kentucky lode, one of the veins intersected by the Bonanza tunnel. A Hooper ore concentrator, ore-washer, separator, and amalgamator have been placed on the lower floor or terrace of the stamp-mill, which has so far proved very satisfactory.

GUNNISON COUNTY.

TOMICHI VALLEY.—This smelter at Gunnison is running with entire satisfaction to the managers. There are on hand over 1000 tons of ore, six car-loads waiting at the smelter to be unloaded, and from five to twelve car-loads arrive daily. On the 23d ult., two car-loads of bullion of high grade were ready for shipment.

LAKE COUNTY.

The Leadville *Herald-Democrat* reports the following:

An unusual amount of placer mining is in progress this season in this county.

The principal placer is the Twin Lakes, which gives indications of very large returns in 1886. The supply of water is ample, and a great mass of auriferous gravel is moving, leaving an unusual amount of free gold in the sluice-boxes.

To the west of Leadville, great activity is also displayed. Mr. Emery is working his placer at the head of Little Frying Pan Gulch; while other parties are sluicing in Colorado Gulch, above the Soda Springs.

In California Gulch, quite a number of parties are engaged in washing. The Stevens diggings, opposite the Grant smelter site, are worked. Still farther up, the St. Louis Company is working, and next to it Mr. C. G. Arnold's placers are found in full operation.

Mr. Edward R. Holden will shortly begin the erection of extensive new sampling-works, the location of which will be more convenient to the large producing mines of the district than the present one, and facilitate the transportation of ore from the mines to the works when the roads are bad.

CHRYSOLITE.—A new shaft is to be sunk to replace the Roberts shaft. Decay of the timbers in the Roberts shaft has given much trouble, and proved a source of continual expense. This is to be obviated by the sinking of a new shaft about 90 feet southeast of the Roberts shaft.

EVENING STAR.—This mine has lately shipped iron ore returning 20 ounces in silver to the ton. The ore-body has a thickness of seven feet, and was opened in driving a drift from the upper shaft at quite a depth below the plane of contact.

HENRIETT.—The sinking of the Maid of Erin shaft has been suspended, and a drift is driving to open the lower workings in the Henriett incline. As soon as this work is finished, the extraction of ore from the second contact will begin.

HIBERNIA.—Messrs. Morgan and Chapin, lessees of the northern portion of this old mine, have begun shipments of iron ore. The lease promises to prove profitable.

LEE BASIN.—Recently a small seam of fine mineral was encountered, and the streak carefully followed. It opened out rapidly, and at the present time an ore-body seven feet in thickness is disclosed to view. Shipments have been made of this ore.

SMUGGLER.—The party working a portion of this mine has disclosed quite a body of iron ore in the new shaft that he sunk in the southern portion of the mine.

ST. KEVIN.—The erection of a concentration mill at this mine is under consideration.

TIP TOP.—The first lot of ore shipped from this property, which lot aggregated 80 tons, returned 46 ounces in silver to the ton. The ore was extracted in driving an exploration-drift. Stoping has begun, and hereafter the output will be continuous. The property, will, it is expected, begin paying dividends the latter part of August. Less than sixty days have passed since ore was first encountered. It is thought that in a short time the mine will be shipping from 40 to 50 tons of ore a day.

WOLFE TONE.—The concentrating mill at this mine started up on the 25th inst., to run on a lot of low-grade mineral that has accumulated on the premises.

LA PLATA COUNTY.

GRAND VIEW.—The smelter has resumed operations, and contracts have been made with many of the leading mines for the season's output.

PITKIN COUNTY.

LITTLE ANNIE.—As soon as this mine is drained, operations will be resumed.

PUEBLO COUNTY.

COLORADO COAL AND IRON COMPANY.—The Iron Point, Star, Iron Mountain Boy, Iron Arch, Mammoth, and Cincinnati mines constitute the purchase of iron mines at Ashcrot, Pitkin County, to which we referred last week.

SUMMIT COUNTY.

ROBINSON CONSOLIDATED.—It was expected that the mine would be drained the beginning of this week, when shipments of ore were to be resumed. Since being flooded, the miners employed in the property have been engaged in sorting over the old dumps, and this work has resulted in the product of about one car a day of quite fair ore. Manager Moore is sparing no effort to resuscitate the mine, and place it on a good producing basis.

DAKOTA.

CUSTER COUNTY.

DOLPHIN TIN MINING AND MILLING COMPANY.—This company has been organized with a capital stock of $4,000,000, $20 a share. A portion of the working capital will be placed on the market in the East and in Custer City at 5 cents a share. The company will work two groups of tin mines, the Dolphin and Donithan. The former group consists of six claims, among which are the Dolphin, the Tempest, Tornado, True Tin Center Nos. 1 and 2. The Donithan group consists of five claims, the Norfolk, Galena, London, Moore, and True Center No. 3. These claims are all located in Warren Gulch District. Considerable development-work has been done on the Norfolk and Galena. The main office will be at Custer City, with a branch office in St. Louis.

LAWRENCE COUNTY.

CALEDONIA.—The superintendent reports, under date of June 21st, that, for the week ended that date, 1363 tons of ore were extracted from the mine, 1157 tons from the 425-foot level, and 206 tons from the cave. The bullion shipped to New York for the first half of June was 429 ounces, or about $7080.50.

CRYSTAL HILL.—This company has been organized with a capital of $1,250,000, shares $5 each. Forty thousand shares are set apart for treasury stock, to be disposed of at once at twenty-five cents a share. Work of development will begin at once. The properties are situated in the Horn-Silver District, and consist of three full claims.

DEADWOOD-TERRA.—The returns for May show gross receipts exceeding $60,000, and it is expected to do better in June. The Father de Smet mill is working on Deadwood ore, the low grade of the former not paying to mill.

GUSTIN-MINERVA.—The mine has been drained, and the mill started up on a continuous run on the 1st inst.

PENNINGTON COUNTY.

HARNEY PEAK TIN MINING AND REDUCTION COMPANY.—The company has purchased from Messrs. Abram Winne, Daniel Phinney, Thomas Kittrell, and Joseph McClure, all of Hill City and vicinity, two groups of tin locations, three in each, located on or near Palmer's Gulch, and other claims located in Hill City District, among which is the Mewonotoc, on which considerable development-work has been accomplished.

MINNESOTA.—Work has begun hoisting the water out of the old shaft and otherwise preparing for making an extensive mill test. The ore-body has been developed by the shaft and cross-cuts to the depth of 120 feet, and there is said to be a large amount of ore that will pay for milling.

IDAHO.

IDAHOAN.—A strike is reported to have been made at a depth of 400 feet. The total received for ore since January 1st, 1886, to date, less freight and treatment, was $121,000, and the dividends amount to $60,000; the amount of such receipts during the month of May was $35,000, and the dividend $22,000. The ore averages about 85 ounces of silver to the ton and 90 per cent lead.

LUCKY BAR.—At a recent meeting, the trustees decided that at their next meeting they would levy an assessment of one cent a share, in order to pay off all liabilities of the company to July 1st. The following officers have been elected: President, J. S. Waters; Vice-President, George W. Faylor; Secretary, T. E. Picotte; Treasurer, C. H. Furey; Manager, Q. A. French.

PHILADELPHIA MINING AND SMELTING COMPANY.—The works at Ketchum have resumed operations, and contracts for ore are making.

ILLINOIS.

CROWN POINT.—This company has been organized at East St. Louis, with a capital stock of $2,500,000; incorporators, Joseph Bartlett, E. W. Duncan, and Harwood A. Boyd.

MAINE.

HANCOCK COUNTY.

CAPE ROZIER.—At this copper mine at Cape Rozier zinc ore has been discovered in the drifts above No. 3 shaft. It is about four feet wide, and does not follow the tunnel, but diverges to the west. It is very near the surface, and a few days' work has opened it up. It looks fine. Work on No. 1 is suspended on account of foul air. The shaft is down about 420 feet, and will have to remain till machinery can be put in to purify the air. If the company would dispense with sinking in No. 3 at present and work the mine for zinc, there is no doubt it would pay at once, as there is a large quantity in sight.

MEXICO.

GULF GOLD MINING COMPANY.—This company has been organized under the laws of Colorado, with a capital stock of $1,000,000, by Frank F. Cranz, William Robinson, Thomas Robinson, Henry Robinson, and John F. Townsend; place of operations, Lower California.

The *Mexican Financier* reports the following:

LA BLANCA.—The output of this mine at Pachuca is increasing.

LA CRUZ.—A rich find of ore has been made at this mine, Mineral del Monte.

LEANDREÑA.—This gold mine in Northern Sonora has been bought by Chicago parties.

MINAS PRIETAS.—This mine in Sonora has been taken in hand by a Cleveland, Ohio, firm, which has leased the mines for three years. In one year, these mines yielded 42,000 tons of ore from which was extracted $750,000 gold.

SINDA.—Works for the reduction of gold ore are to be built at this mine in the southern part of Morelia, the machinery having been already ordered from California.

YESO.—This mine, Hermosillo District, Sonora, has been bought by Americans, who will put in new machinery.

MICHIGAN.

COPPER MINES.

BELT.—A committee appointed at a recent meeting n London will visit the mine and make a report.

CLIFF.—The tributers have stamped some 250 tons of picked rock from the burrow with satisfactory results, and are now making alterations in the stamps and washers.

GRAND PORTAGE COPPER MINING COMPANY.—All the goods, chattels, and real estate of this company will be sold at public auction by the sheriff at Houghton, on the 21st inst.

IRON MINES.

The following statement, given by the Marquette *Mining Journal*, shows the amount of iron ore shipped from the ports of this district for the season of 1886, up to and including Wednesday, June 23d:

	Tons.
Marquette—Marquette District	250,727
St. Ignace	15,590
Escanaba—Marquette District	165,033
Menominee District	261,993
Grand total of lake shipments	693,343

Shipments of Pig-Iron.

Pioneer furnace	730
Deer Lake furnace	225
Vulcan	6,117
	7,072

The gain over the shipments from the above ports during the same period of 1885 is 138,967 gross tons.

EMMET.—At the Hamilton shaft, which this company has put down on its tract adjoining the Ludington mine, near Iron Mountain, they have already drifted from the bottom 80 feet, all the way in ore, without encountering rock. Drifting has been discontinued for the present, and the management will now explore farther with the diamond drill. A contract for sinking a drill-hole perpendicularly from the bottom of the shaft to a depth of 800 feet (the shaft itself is down 845 feet) has been let to the M. C. Bullock Manufacturing Company, of Chicago. Drilling in other directions will also be prosecuted, to determine the extent and lay of the ore deposit, with the view of sinking a second shaft.

MINNESOTA.

ST. LOUIS COUNTY.

MINNESOTA IRON COMPANY.—Shipments of ore from the North Lee mine have begun. Shaft No. 1 has been sunk to the depth of 45 feet, and at this depth shows a fine grade of ore. The shaft is not worked; but as soon as the slope is worked down to the first level, the shaft will be pumped out, and work will again begin.

MONTANA.

LEWIS & CLARKE COUNTY.

ELKHORN.—Official advices report the product for May to have been 19,546·44 ounces of silver and 10·688 ounces of gold.

EMPIRE.—The new mill was to be ready for operations on the 1st inst.

HOT SPRINGS.—This mine has reached such a stage in its development that its managers have resolved to put in a concentrator at an early date. A central shaft is to be sunk.

NEVADA.

ELKO COUNTY.

OWYHEE.—This company has been organized to operate Tuscarora Mining District. The capital stock is $1,000,000, divided into 1,000,000 shares. The first Board of Directors is composed of J. C. Eaton, E. Scott, J. W. Pew, A. L. Perkins, and C. W. Price.

EUREKA COUNTY.

EUREKA CONSOLIDATED.—The furnace has been closed for an indefinite period. The roaster will continue to work speiss, and the work of constructing new roasters has begun. At the company's hoisting-works, the placing in position of the new engine progresses favorably, and it is probable that pumping will begin by the 10th of this month. A large flume is constructing from the dump around a grade a distance of about half a mile, in order to carry off the water raised from the lower levels of the mine.

LINCOLN COUNTY.

PIOCHE CONSOLIDATED.—This company has been organized under the laws of Utah, with a capital stock of $1,000,000, shares $100 each. The present officers are W. S. Godbe, President; Thomas Marshall, Vice-President; James T. Little, Treasurer; Boyd Park, Secretary; J. C. Conklin, Lieutenant S. W. Groesbeck, S. T. Godbe. The object of the company is the mining, smelting, leaching, buying, working, and selling of ores containing valuable minerals. The duration of the corporation is placed at fifty years unless sooner dissolved according to law. Salt Lake City will be the principal place of business. Operations will be carried on at Pioche.

STOREY COUNTY.

From the Virginia City *Chronicle* we take the following:

A test of the tailings from the big reservoir near the old Express mill-site at the southern base of Sugarloaf Mountain, Six-Mile Cañon, is to be made in the Atlanta mill, near Johnstown, and if the present test proves remunerative, operations will be inaugurated on a larger scale. This is said to be the largest deposit of tailings on the Pacific slope. They were flumed in bulk to the reservoir after leaving the blanket sluices at the Omega mill, ten years ago by the late Ira Parke. The quantity accumulated there is variously estimated at from 800,000 to 4,000,000 tons. According to assays, the mass contains an average value of $6 to the ton.

COMSTOCK LODE.

COMBINATION SHAFT.—The required depth of 43 feet below the 3200 level was attained on the 17th, and further sinking suspended. A station is now excavating on the 3200 in the shaft, preparatory to sending out a drift to connect with the deep winze in the Hale & Norcross. The following interesting statistics pertaining to the shaft were compiled for the *Chronicle* by general foreman Charles Mathewson: Depth of the shaft below the floor of the engine-room 3275; depth from the collar of the shaft to the bottom 3243 feet; depth below the base of the Chollar croppings, 3500 feet; depth on the dip on the ledge (which pitches to the east at an angle of 45 degrees), 5000 feet. The last 100 feet sunk were sunk at the rate of 18 feet a week, which is speedier than the first 100 feet below the surface was sunk. The temperature was cooler in the bottom of the sump while sinking the last 100 feet below the 3100 than at any point for a distance of 1000 feet above that level. There is no water in the bottom of the sump except what comes from more than 50 feet above. The west end of the station excavating on the 3200 level is in quartz. The excavation of a station on the latter level has been begun. When completed, it will be 30 feet long, 30 feet wide, and 9 feet high. The shaft is in four compartments. The north and south compartments are for the Cornish and hydraulic pumps, and the middle compartments for hoisting and lowering men

and material. There are still 300 feet of spare cable on the hoisting-reels, and the shaft can be sent down 300 feet below its present depth with the machinery now in operation.

CONSOLIDATED CALIFORNIA & VIRGINIA. — The official statement for May shows that 12,040 tons of ore were extracted from the mine and crushed at the mills. The assay value of the bullion resulting was $147,161.63. Deducting the discount on silver—$19,131.01—leaves a net yield of $128,030.62. The expenses of the mine and mills in May aggregated $137,482.90, or $9452.28 more than the net yield. The ore worked thus far in June is of much lower grade than that in May, the average value of the battery samples at the Eureka mill last week being $8.83 a ton. It cost fully $11.50 in May to produce bullion, the silver portion of which was subject to a discount of at least 25 per cent. The report for the week ended the 19th ult. shows that 1066 tons of ore were shipped to the Morgan mill, and 1668 to the Eureka mill. The average value of the ore milled, according to assays from battery samples, was $10.87 a ton for that crushed at the Morgan mill, and $8.83 for that crushed at the Eureka mill.

GOULD & CURRY.—From the top of the incline uprise, 150 feet above the track floor of the 600 level, two cross-cuts were started; one running east was advanced 28 feet, and the other running west 38 feet. The west cross-cut is in a mixture of quartz, clay, and porphyry giving low assays. The east cross-cut is in vein-matter carrying no metal.

HALE & NORCROSS.—A west drift is going in from the south lateral on the 3200 level, cutting vein-matter in its advance. The diamond drill hole from the face of the north lateral drift on the 2900 level has reached the Savage south line.

SAVAGE.—Numerous stringers of sulphuret ore giving high assays were cut in extending the south drift, on the 600 level.

NORTH CAROLINA.

ALEXANDER COUNTY.

EMERALD & HIDDENITE.—Prof. W. E. Hidden, of this company, at Stony Point, reports the finding of 7 ounces of hiddenite—green spodumene; but only six crystals are suitable for gem purposes.

RANDOLPH COUNTY.

HENLEY.—Prospect-work is going on at this mine, which was opened some forty years ago.

UWHARRIE.—The main shaft is down 85 feet. They have drifted each way on the ore-body. This mine has been recently purchased by the North State Copper and Gold Mining Company, and they will put up a twenty-stamp battery for reducing the ore.

UNION COUNTY.

HEMBY.—The promising outlook prompted the company to purchase a plant of machinery, consisting of an engine, boiler, ten-stamp mill, Cornish pump and hoisting-engine, which is now going into position.

OREGON.

UNION COUNTY.

A letter from Mr. J. E. Johnston to the Denver *Tribune-Republican*, from Cornucopia, speaks of the location and richness of the newly discovered mining district known as the Pine Creek Country. The town of Cornucopia is situated about fifty miles northeast of Baker City, and the district stretches out to Snake River, on the western boundary of Idaho. The nearest railroad point is the town of Union, on the line of the Oregon Railroad and Navigation Company. The deposits of gold and silver ores were only discovered last summer; and he calls attention to this unnoticed region. "I feel perfectly justified in asserting that, with the exception of the Leadville excitement (I might state that I have been to not a few mining booms), there is more real encouragement for capital to invest on a safe basis than at any place I have ever been to. The ore is of a quartz character, and generally found between granite and a kind of block or lime slate rock; the quartz in places shows up considerably decomposed and carries black sulphurets, galena, native silver, and considerable free gold. The principal drawback is, that none of the ledges has been developed yet to a true testing depth, and some of the best properties are owned by poor and inexperienced men in mining. I wish to say for the benefit of the laboring class that it would be madness for any one to come here with the hope of getting employment, at least until some of the prospects here change hands, as there is an influx of labor now; also enough business houses for the present."

SOUTH CAROLINA.

BERKELEY COUNTY.

KIAWAH.—These phosphate mines have been sold to Messrs. Mead, Rylance & Co., of Southport, England, by whom they will be worked in future. It is understood that the price paid was about $28,000. The mines are situated on the Cooper River, and contain about 2300 acres of pine and phosphate lands, together with all the machinery, railroad tracks, and other appliances.

UTAH.

MAMMOTH.—The calcining-furnace works well, and copper matte is shipped to Argo, Colo.

SALT LAKE COUNTY.

FLAGSTAFF.—A proposal is before the shareholders in the original Flagstaff Silver Mining Company of Utah, Limited, and the Flagstaff District Mining Company, Limited, both of which companies went into liquidation some time ago, to consider an offer for acquiring and working a silver mine adjoining the Flagstaff and Emma mines, in Utah. It is proposed to incorporate a new company in London with a capital of £350,000 in £1 shares; 50,000 fully-paid shares will be handed over to the venders for the transfer. The remaining shares will be offered, in the first instance, to the old Flagstaff shareholders in the following manner, namely, each £10 share in the original Flagstaff Company to be entitled to five shares in the proposed new company, and each £1 share in the Flagstaff District Company to be entitled to one share, such shares to be issued to the old shareholders or their nominees with 19s. a share credited as paid up thereon. An agreement to this effect will be duly registered. A cash capital of £15,000 will thus be raised, and the whole of this will be applied to working the mine. The venders will visit London and Glasgow in August, when it is proposed to hold meetings of the old Flagstaff shareholders in those cities. This scheme is said to have the cordial approval of some of the principal Flagstaff shareholders in London and Glasgow. The mine referred to is in the same mineral belt as the Emma and Flagstaff, and it has been favorably reported on by two English mining experts.

VIRGINIA.

SPOTTSYLVANIA COUNTY.

GREENWOOD.—This mine, near Fredericksburg, has been secured by a company from Boston. New and improved machinery is erecting to develop it.

STAFFORD COUNTY.

RAPPAHANNOCK.—The company has received eleven ounces of solid gold nuggets from the mine weighing from 1 to 18 pennyweights. Work will be pressed forward for the development of the part of the mine in which this discovery was made. Seventy-five ounces of gold amalgam were also received.

BULLION PRODUCTION FOR 1886—SPECIAL OFFICIAL REPORTS.

MINES.	States.	Month of May.	Year from Jan. 1st, 1886.
		$	$
Alice, G. S	Mont.	**100,027	475,157
Boston & Montana, G.	Mont.	49,250	321,287
Caledonia, G.	Dak.	15,173	96,585
Christy, S.	Utah.	26,447	111,907
Chrysolite, S.	Colo.	** 18,602	91,485
Colorado Central, S.	Colo.	24,580	113,357
Daly, S.	Utah.	.....	126,728
Deadwood-Terra, G.	Dak.	51,048	207,984
Derbec Blue Grav., G. S.	Cal.	.....	62,796
Elkhorn, G. S.	Mont.	20,354	102,272
Eureka, S. L.	Nev.	.....	74,105
Father de Smet, G.	Dak.	.....	61,376
Freeland, G. S. C	Colo.	28,860	127,591
German Consolidated, G	Colo.	.....	53,673
Granite Mountain, S.	Mont.	107,900	592,500
Head Center Cons., S.	Ariz.	.....	4,633
Head Center & Tranq., S.	Ariz.	25,818	25,818
Hecla, G. S. L. C	Mont.	.....	251,303
Helena, G. S. L. C.	Mont.	.....	240,234
Holmes, S	Nev.	25,651	257,729
Homestake, G.	Dak.	93,980	488,919
Hope, S.	Mont.	14,743	57,643
Iron Hill, S.	Dak.	** 41,925	204,559
Iron Silver, S. G.	Colo.	.....	252,540
J. D. Reymert, S.	Ariz.	483	483
Kentuck, S.	Nev.	† 523	1,563
Lexington, G. S	Mont.	107,806	424,965
Montana Limited, G. S.	Mont.	146,500	648,205
Moulton, G. S.	Mont.	44,840	260,340
New Pittsburg, S	Colo.	.....	5,230
Ontario, S.	Utah.	.....	495,542
Plymouth Consolidated, G.	Cal.	49,502	255,473
Plutus, G. L. C	Colo.	11,890	95,049
Ropes, G. S.	Mich.	3,500	14,191
Standard Consolidated, G.	Cal.	13,051	79,119
Tombstone, G. S. L.	Ariz.	.....	271,741
Total		.....	$6,812,626

G., gold; S., silver; L., lead; C., copper; M., mica. Silver valued by the different companies from $1@$1.29 per ounce; gold, $20.67. *Not including value of lead and copper. ** Silver valued at $1.29. † Royalty. ‡ Net. § Ore sales. ‖ Not official. —— No shipments during month mentioned.

MARKETS.

Silver.

NEW YORK, Friday Evening, July 2.

DATE.	London. Pence.	N. Y. Cents.	DATE.	London. Pence.	N. Y. Cents.
June 26	44¾	98	June 30	44 11-16	98
28.	44¾	98⅛	July 1	44⅝	97¾
29.	44 11-16	98	2	44⅛	97⅛

The London rate for silver has declined during the past week on weak India Exchanges, but there is reason to hope for an early improvement in the latter, with an advance in silver, as the decline has been caused by an exceptional condition of the East India trade.

Foreign Bank Statements.—The governors of the Bank of England, at their regular weekly meeting, made no change in the bank's minimum rate of discount, and it remains at 2½ per cent. During the week, the bank gained £232,000 bullion; and the proportion of its reserve to its liabilities was reduced from 41⅜ to 37½ per cent, against 48⅝ per cent at the same date last year. On the 1st inst., the bank gained £7000 bullion on balance. The weekly statement of the Bank of France shows losses of 7,275,000 francs gold and 2,150,000 francs silver.

Copper.—The copper market is stationary as to price, and very active—booming, in fact, as to consumption. The prices obtained are, 10c. for Lake for domestic sales, and 9¾@9·90c. for export. The foreign market has fallen off, and the demand from that side has ceased, so that the higher prices quoted some weeks ago for small lots are no longer obtainable. The sales of the Lake companies have practically covered their output to the present time, and there are no large stocks, and the market is in an excellent condition for an advance should the foreign market justify it.

The sales of Orford and Baltimore, and especially of the former, have been very heavy during the past month, heavier, in fact, than in any previous month this year. On every hand, the reports assure us that consumption is very much heavier than it ever was before, and production is falling off, except in the Lake District, and even there the increase will be small; Tamarack producing less than was expected, and the recent Allouez strike not apparently amounting to very much. In Montana, Clark's Colusa produced last month much less than its average quantity. The Parrot will lessen its output, and only the Anaconda will keep up to last year's production. In Arizona, it is probable that the Queen will take a rest while making furnace repairs, etc., so that the increased consumption will leave but a very moderate amount to go abroad, though recent sales of Lake may give the erroneous impression abroad that our old rate of export is going to be renewed. The prices at which Orford and Baltimore are sold are, in many cases, very low, probably below 9½ cents, except for fancy brands and electrolytic, which command more.

For foreign sales, Arizona pig would scarcely bring more than 8¼c., or Baltimore ingot more than 9c.; it is, therefore, better that the copper should go out in the form of furnace material than as ingot. The report quoted below from Messrs. James Lewis & Son, that "9000 tons of American ingot, 3000 tons of which have been refined from Anaconda matte at Baltimore, are offered for sale for early delivery," is highly improbable, and we have been unable to confirm it.

There are no large stocks of copper anywhere in this country.

Chili Bars are quoted £39 10s., which is again a little lower. B. S., £44.

Tin.—This market has followed London in its fluctuations, from £102 on June 26th, £102 5s. on 28th, £102 on 29th, and £101 10s. on 30th. Yesterday, it was quoted £101, and to-day it closes £99 15s., and three months £100 5s. Our market here has fluctuated between 22·80@22·40c., to-day being worth about 22·25c. Sales reported at the Metal Exchange amounted to less than 75 tons during the week.

Lead.—The market here is very strong at 4·90c., at

which price about 1600 tons were sold during the week; of this, 1200 tons were Richmond lead, which we announced some time ago as being afloat for this port. We hear of 350 or 400 tons more Richmond coming by two steamers, but how much more that company has is not known. At the end of February, the company is reported to have had in store something over 6000 tons, of which probably more than a half has been sold.

There are no stocks of lead in this country, except some 3½ million pounds of foreign now in bond here. The sales this week were mostly directly to manufacturers.

Foreign lead in London was quoted to-day £13 5s., and it can be laid down here at 4·92½c.

We quote manufactures: Sheet-Lead, 7¾c. net, and Lead Pipe, 6¾c., less the usual 20 per cent discount. Shot, Buck and Chilled, $1.45 per bag, in 25-pound bags.

Messrs. Everett & Post, of Chicago, telegraph to-day as follows:

There is a fairly active demand for both hard and soft lead, and prices are held stiff. Since our last report, sales of both soft and hard lead have been more free, and several hundred tons have been purchased at 4·70@4·75c. Offerings are only moderate now, as there are no stocks visible; we see no reason for a decline.

Messrs. John Wahl & Co., of St. Louis, telegraph as follows to-day:

Market just a little stiffer. Holders are taking it easy, and do not force sales. We may quote both Hard and Soft lead worth 4·67½@4·70c., and only lightly obtainable at these figures.

Spelter.—The European price remains at £13 17s. 6d. for Silesian, and here we quote 4⅜@4¾c. for Western brands, according to quality; 6¼@6½c. for New Jersey; and 8¾c. for Bergenport Lehigh. Foreign Spelter, 4·80@4·90c.

Sheet-Zinc—5½@5¾c.

New Jersey Zinc Oxide is quoted 3¾@4¼c.

Antimony.—This market is quiet at 8½@8⅝c. for Hallett's; 9c. for Cookson's here; and in London, £33 for Hallett's.

Nickel.—We quote 70c. nominal.

Bismuth—Is quoted at $1.90@$2 a pound.

Aluminium—Is quoted at $1 an ounce.

Quicksilver.—The advance in London has improved our own market, which may now be quoted at 49 cents.

We are indebted to the courtesy of Messrs. Thomas J. Pope & Brother for advance-proofs of their monthly circular, from which we make the following extracts:

EXPORTS AT PORT OF NEW YORK.

	Month of April, 1886. Pounds.	Month of May, 1886. Pounds.	Month of June, 1886. Pounds.
Copper	1,079,156	464,523	1,527,806
Copper matte	3,274,210	2,713,322	2,891,380
Copper ore	1,903,800	1,982,100	1,421,800

IMPORTS IRON AND METALS AT PORT OF NEW YORK.

	Month of June, 1886.		Month of June, 1886.
Pig iron, tons	7,570	Steel bdls., bars, etc., tons	272
Spiegel-iron, tons	11,791	Steel hoops, tons	260
Old iron rails, tons	1,148	Slab and ingot tin, pounds	1,700,164
Steel RR. bars, tons	75	Spelter, pounds	371,774
Steel blooms and bars, tons	4,736	Sheet-zinc, pounds	93,416
Iron ore, tons	10,475	Pig-lead, pounds	858,015
Scrap-iron, tons	2,260	Regulus of antimony, casks	293
Scrap-steel, tons	855	Old copper and brass, pounds	1,645
Swedish iron, tons	2,148	Type metal, pounds	76,972
Sheet-iron, tons	109	Nickel, pounds	21,712
Steel tires and forgings, tons	289	Bismuth, pounds	3,843
Iron beams and girders, tons	272	Tin plates, boxes	242,910
Steel wire rods, tons	8,125	Copper, pounds	428,510
Iron wire rods, tons	210		

METALS IN BOND AT PORT OF NEW YORK.

	July 1st, 1886.		July 1st, 1886.
Pig-lead, pounds	3,569,141	Old copper, p'nds.	652,131
Regulus of antimony, casks	10	Old zinc, pounds	15,400
Sheet-zinc, pounds.	23,643	Tin-plate, boxes	32,268
Spelter, pounds	139,058	Russian sheet-iron, pounds	1,460,030
Nickel alloy, p'nds	13,972	Steel wire rods, tons	6,157
Old brass, pounds.	11,561		

IRON MARKET REVIEW.

NEW YORK, Friday Evening, July 2.

The better feeling noted in these columns during the past few weeks continues and expands; now it covers nearly every branch of trade, and, while sanguine individuals are already banking on the "good business" they see before them this autumn, even the most conservative appear confident that things will be no worse, and have but lingering doubts about their being better during the remainder of the year.

The following are standard prices of Lake ores at Cleveland, but we understand they are shaded:

No. 1 Specular and Magnetic Bessemer ores, per ton	$6.25
No. 1 Specular (non-Bessemer) ores, per ton	5.50
Bessemer Hematites	$4.75@5 50
Non-Bessemer Hematites	3 75@4.25

Freights from Escanaba are 90@95c. a ton.

New York prices for foreign ores are from 8@9 cents per unit.

American Pig.—The consumption is quite active, and though prices are only steady, the outlook is quite favorable for a steady, profitable trade during the remainder of the year. Southern irons are establishing themselves firmly in Northern markets, and we hear of concessions having to be made in some Northern brands to meet them. Standard brands remain unchanged.

We continue to quote for standard Lehigh brands, tide-water delivery: No. 1 X, Foundry, $18@$18.50; No. 2 X, Foundry, $17@$17.50; Gray Forge, $16@$16.50; while less popular brands sell 50c. or $1 below these figures, and fancy brands go as much above them.

Scotch Pig.—There is no change observable in this metal. Arrivals are light and prices unprofitable. We quote: Coltness, $20; Gartsherrie, $19; Summerlee, $19.50; Dalmellington, $18.50@$18.75; Langloan, $19. Cables to the Metal Exchange to-day quote: Coltness, 46s. 9d.; Summerlee, 45s. 6d.; Langloan, 43s. 3d; Gartsherrie, 43s.; Glengarnock, 42s. 6d.; Dalmellington, 40s. 9d; Eglinton, 39s. 3d.; Warrants, 39s.; Middlesboro', No. 3, 29s. 4½d. Freights are about 4s.

Bessemer Pig.—The business in this article continues fairly good, considerable quantities coming in. We quote Domestic at $18@$18.50 at the furnace, and Foreign, ex ship, $18.50@$19.

Spiegeleisen.—We quote English, $25.50@$26, and German, $25. Eighty per cent ferro-manganese is quoted at $63@$65. A fair business is done in English spiegeleisen, and arrivals are quite heavy.

We give elsewhere some figures of importation that will be of interest.

Steel Rails.—The steel mills are so well filled with orders that they are unwilling and even unable to take orders for early delivery, except for small amounts, and some of them are booked up for nearly the entire year. The demand for rails seems to increase as the difficulties in getting them increase, and we hear of inquiries in the market that would aggregate perhaps 150,000 tons, and deliveries would run over into the spring of next year. So far as current business is concerned, we hear of sales of 7000 tons by a Pennsylvania mill, and a few small lots by Eastern mills. We hear of an order in the market for 13,500 tons, for delivery extending over nine months for the far West, which will probably go to St. Louis; in fact, there is no competition for orders, each mill having all it cares to take.

We quote at Eastern mills $34.50@$35, with no apparent intention to increase the price this year; in fact, at present foreign rails are offering in large blocks, New York delivery, at $37, and we hear of $36 being bid by some who think any thing that comes from a distance must be better than things made at home.

Steel Blooms.—It is said that about 3000 tons of foreign steel blooms have been sold to arrive for rolling here, and it is said that large quantities are offered. Some reports say 20,000 tons sold, to arrive at $24@$24.50.

Steel Plates.—We quote 2½c. for Tank; 3@3¼c. for Boiler and Ship Plates; 3½@3¾c. for Flanges; 4@4½c. for Extra Flange and Fire-Box Plate.

Merchant Steel.—American Tool Steel, 7½@10c.; special qualities, 11@20c.; Crucible Machinery, 4½@5½c.; Bessemer and Open-Hearth Machinery, 2½@2¾c.

Structural Iron and Steel.—Prices remain unchanged. We quote Angles, 1 90@2·10c. delivered; Tees, 2·40c.; Iron Beams and Channels, 3c. for American from dock; Steel Angles, 2·35@2·40c.

A large amount of business is in the market, especially for bridge steel and for beams. Several large bridges are to be built, and makers report orders more abundant than for a long time past. We hear also of the material for two bridges having gone from a Pittsburg mill to Peru, S. A. The steel mills, whether of rails or structural steel, are having a most encouraging business.

Plate Iron.—Common Tank, 2@2¼c.; Refined, 2¼c.; Flange Iron, 3¼@3·5c.; Extra Flange, 4@4·25c.

Bar Iron.—Refined we quote at 1·75@1·90c.; Common, 1·60@1·70c. Store prices are ·10@·20c. higher.

Old Rails.—Tees and Double-Heads are offered at $18.50@$19, and we hear of a sale of 500 tons for Philadelphia at $20 delivered there; but this price is above our figures here, where $18 appears to be about the standard set by buyers.

Cast-Iron Pipe.—The business of the pipe-founders is quite active. We quote $32.50 per ton for 4-inch pipe; $31.50 for 6-inch; and $28.50 for 48-inch, at the foundry.

Scrap.—We quote $18.50@$19.

Philadelphia. July 1.

[From our Special Correspondent.]

The most careful inquiry in the market fails to develop any matters of genuine interest. The entire market is at a stand-still. Production has continued steady all along in nearly all branches. The supply of pig-iron is fully up to all market demands, and, on account of the heavy offerings from some Southern furnaces, it is probable that ordinary brands of foundry and forge here will be shaded, in order to prevent business going Southward. No one wants material just now, and business can not be worked up unless at a drop. There are, however, some brands of iron here that can not be had except at makers' prices. A half-dozen concerns are permitting stocks to accumulate, because they say the summer demand will carry every thing away at their own figures. No. 1 Foundry is $18@$19; No. 2, $17@$17.50, with something less for a poor quality. On account of the attitude of the merchant bar trade, there is very little Forge iron moving, and figures continue at $15.50@$16. The makers of the finer brands of irons all through do not regard the situation as justifying any shading.

Muck-Bars.—Muck-Bars are quoted at $29.

Blooms.—Some little inquiry for anthracite Blooms continues, but business is dull.

Foreign Material.—Both Bessemer and spiegeleisen could be sold, provided buyers' terms were taken, but sellers are not anxious.

Merchant Iron.—A strike began to-day among 1500 rolling-mill men at Philadelphia, and it may extend through the valley and into the interior of the State. The Eastern puddlers desire to more nearly equalize wages with Western puddlers, who are paid $1.35 a ton more. The strike will probably be prolonged, as they are promised financial assistance from the Amalgamated Association. The puddlers will be anxious for a few weeks' rest in any event. The chief demand just now is for common and medium iron, but the country mills seem to be getting most of this business. Orders have been taken within a few days, according to rumors current here, for between 400 and 500 tons.

Nails.—The nail trade is very light this week, and quotations are $1.80@$2.

Plate Iron.—Some orders for Plate iron have been taken within a few days for immediate delivery at 1·90@2c.

Structural Iron.—The week's business, so far as orders go to show, foots up about 400 tons; but there is a good deal more business said to be in sight. The manufacturers have no assurance that it will be done before July 15th.

Wrought-Iron Pipe.—The mills have been running full-time all along, and firm prices are paid for all the contracts that can be taken.

Skelp Iron.—Skelp is 1·85c.; demand heavy.

Steel Rails.—Small orders have been taken at $35@$35.50. Large lots can be had at $34.

Old Rails.—There has been no business for either spot lots or from the interior. Quotations are $20. Something less may be taken.

Scrap.—The scrap-yards are all full, and holders are endeavoring to work off stocks, but without success.

Pittsburg. July 1.

[From our Special Correspondent.]

We are able to report a steady market, with liberal transactions, when the season of the year is taken into consideration. The sales for the same week in 1885 were 1650 tons; for the corresponding week this year, the sales exceeded 17,000 tons. One sale of 6500

Western-made Bessemer was sold to one of our iron brokers at $17.75 a ton cash. The same was resold to an Eastern firm at $18, to be delivered in ninety days. Pittsburg-made iron can not be obtained for those figures, $18@$18.50 being the lowest price. There is considerable Southern iron to be had at prices below current quotations. That being a well-known fact, buyers make good use of it. Most of the mills will close after this week for repairs and stock-taking; hence we may look for a falling off in the demand for raw iron.

The outlook for the fall and winter is a good one; at least, that is the opinion of those who have the best means of being informed on the subject. Most of the nail mills will be put in operation as soon as they can be made ready, which will take some time, having been out of use since June, 1885. And yet nails are lower to-day than they were one year ago. Good brands of pig-iron are by no means abundant: others appear to be so, because of the anxiety to secure offers. Buyers generally are holding off, and it has been difficult to do any thing without concessions. This, however, refers only to outside brands, others being steady at quoted rates. There is too much poor stuff, and not quite enough of the better grades. The market, therefore, looks strong or weak, according to the article offered or sought for.

Lake Ores.—The demand has fallen off. Parties that were here to sell returned home without a contract.

Muck-Bar.—Steady sales; 1000 tons $27.50 cash 500 tons, $28 four months.

Steel Blooms.—Held $31@$36.

Steel Slabs.—Without change.

Steel Crop Ends.—Steady, $22.

Steel Bloom Ends.—Offered at $21.

Old Rails.—A shade firmer; held at $20.50@$21 rates extreme.

Pig-Iron.—Following are the current rates:

	$	$
Coke or bituminous:		
Foundry No. 1	17 50@	18.00
Foundry No. 2	16.75@	17 25
Gray F., No. 3	15.50@	16.00
" " No. 4	15.25@	15.50
White	14.50@	15.00
Mottled	15.00@	15.50
Silvery	15.50@	18.50
Bessemer	18.00@	18 50
Charcoal:		
Foundry No. 1	21.50@	23 00
Foundry No. 2	20.00@	20.50
Cold-Blast	25.00@	28.00
Warm-Blast	18.00@	24.00
20 p. c. Spiegel	27 50@	.....
Muck-Bar	27.25@	27.75
Steel Blooms	31.00@	36.00
Steel Slabs	29.00@	33.00
Steel Crop Ends	22.00@	.....
Steel Bl'm Ends	21.00@	.....
Old Iron Rails	20.50@	21.00
Old Steel Rails	20.50@	21.00
No. 1 W. Scrap	17.50@	18.00
No. 2 W. Scrap	14 50 @	15.00
Steel Rails	36.00@	36 50
" light sect's	37.00@	40.00
Bar Iron	1.70@	1.75
Iron Nails	2.00@	2.05

Louisville. June 30.

[Reported by GEORGE H. HULL & Co.]

Inquiries for iron during the last week have been more numerous than during the previous week. Although actual sales have not been so large, yet larger buyers are showing some disposition to take hold at present prices. Prices remain nominally the same as in our last report.

We quote for cash in round lots as below:

PIG-IRON.

Southern Coke, No. 1 Foundry	$16.50@$17.50
" " No. 2 "	15.50@ 16.50
Hanging Rock Coke, No. 1, Foundry	16.50@ 17.00
" " Charcoal, No. 1, Foundry	18.00@ 19.00
Southern Charcoal, No. 1. Foundry	17.50@ 18.50
Southern Coke, No. 1 Mill, Neutral	14.50@ 15.00
" Charcoal, No. 1 Mill	17.00@ 17.50
White and Mottled, different grades	12.00@ 13 00
Southern Car-Wheel, Standard Brands	24.00@ 25.00
Hanging Rock, Cold Blast	24.00@ 25.00
" " Warm Blast	20.00@ 21.00

COAL TRADE REVIEW.

NEW YORK, Friday Evening, July 2.

Statistics.

The report of the total output of coal from the mines on the line of the Chesapeake & Ohio Railroad for the week ended June 14th, 1886, and year from January 1st, is as follows; 1886, week, 23,610 tons; year, 530,397 tons; 1885, week, 21,872 tons: year, 503,859 tons. Increase, 1886, week, 1738; increase year, 26,538 tons.

Production of Coke on line of Pennsylvania RR. for week ended June 26th, and year from January 1st:

Tons of 2000 pounds.

	1886. Week.	1886. Year.	1885. Week.	1885. Year.
Allegheny Region.	1,699	96,089	3,761	91,371
West Penn. RR.	1,918	50,826	1,354	21,702
Southwest Penn. RR	68,343	1,191,390	40.799	939,904
Penn. & W. Region	6,670	157,486	3,828	112,028
Monongahela	6,452	60,672	2,792	47,797
Pittsburg Region.	.....	.....	.....	.....
Snow-Shoe	48	9,412	445	7,514
Total	85,120	1,565,875	52,979	1,220,316

Production Anthracite Coal for week ended June 26th, and year from January 1st:

TONS OF 2240 LBS.	1886. Week.	1886. Year.	1885. Week.	1885. Year.
P. & Read. RR. Cr.	223,074	5,009,411	197.728	4 728,915
L. V. RR. Co.	96,062	2.875,697	114,034	2,428,926
D. L. & W. RR. Co.	70,579	2,375.880	78,949	1,892,864
D., & H. Canal Co	74,633	1.723.418	70,148	1.586,047
Penna. RR.	50,001	1.476.255	57.330	1,437.691
Penna. Coal Co	36,140	599 520	25.001	556,569
Penna. Canal Co	12,127	145,984	14,347	123,627
Total	562,616	14,206,165	557.537	12,754,639
Increase	5,079	1,451,526		
Decrease				

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production

Production for corresponding period:

1881	11 921,724	1883	14,128,289
1882	12,692,313	1884	13,628,406

Production Bituminous Coal for week ended June 26th, and year from January 1st:

Tons of 2000 pounds, unless otherwise designated.

EASTERN AND NORTHERN SHIPMENTS.

	1886. Week.	1886. Year.	1885. Week.	1885. Year.
Phila. & Erie RR.	43	7.507	.....	16,675
**Cumberland, Md.*	78.979	741.316	52,628	1,268.394
Barclay, Pa.	3,053	96,819	4,399	120,538
**Broad Top, Pa.*				
H. & Broad Top RR.	6,309	181,178	2,250	83,260
East Broad Top	.....	.....	.....	.....
Clearfield Region, Pa.				
Snow Shoe	2,095	40,688	973	79.546
Karthaus (Keating)	2,396	56.720	1.674	65,970
Tyrone & Clearfield	57,396	867.728	48,024	1,484,156
Alleghany Region, Pa.				
Gallitzin & Mountain	8,828	397,821	8,297	246,487
Total	159,099	2,389,777	118,245	3,365,026

* Tons of 2240 lbs.

WESTERN SHIPMENTS.

Pittsburg Region, Pa.				
West Penn RR.	8,602	163,800	2,870	123,945
Southwest Penn. RR.	3 003	94,953	1.384	50,869
Pennsylvania RR	7,577	120,897	4,359	95,910
Westmoreland Region, Pa.				
Pennsylvania RR.	36,455	457,830	28,462	518,597
Monongahela Region, Pa.				
Pennsylvania RR.	13,003	182,709	7,752	109,660
Total	68.640	1,020,189	44,827	901.981
Grand total	227,739	3,409,966	163.072	4,267,007

The Norfolk & Western Railroad Company reports the shipments of Pocahontas Flat-Top coal for the week ended June 26th, 1886, and year from January 1st, as follows, tons of 2000 pounds: 1886, week, 15,457; year, 381.978; 1885, week, 11,066; year, 256,377. Increase, 1886, week, 4391; increase, year, 125,601.

Anthracite.

There has been more business accomplished this week than last, and also more inquiry. This, however, has only prevented the situation from becoming worse, and has not been enough to improve prices or to give much confidence to producers.

As bad as the situation is upon the surface, it is much worse when one can take an inside view. The coal combination is a great disappointment, and its inside workings are far from being harmonious. When the combination was formed, there was no admission that any agreement had been entered into, and recent correspondence between the Reading receivers and Mr. Gowen developed the fact that that company was not a party to the agreement. There was, however, a belief that there was "an understanding among gentlemen." Of course, the trade has accepted the belief that there was an agreement among the companies to curtail production to such an extent as to permit all to receive a fair price for coal, and to make some profit. However, it is admitted that some of the companies are not living up to the arrangement that was supposed to exist; that they are not curtailing production in accordance with the programme; and, as a matter of course, are overstocking the market with coal, and securing very unremunerative prices.

Delaware, Lackawanna & Western's average for May was but $2.96 a ton, against an average for the whole of 1885 of $3.21. Only two years, out of the past seventeen, have averaged lower than last month, namely, 1879, $2.33, and 1877, $2.70 a ton. Such prices are very unsatisfactory and do not justify a curtailment of production, and there is naturally a great deal of antagonism to a combination that does not produce better results.

It is believed that the production for the three months that the combination has been in existence, to the end of June, will exceed the allotments for the same period by 500,000 tons, and so far it is not certain that the showing will not be even worse at the end of this month. Some people in the trade favor a disruption of the combination if the "gentlemen" will not abide by their "understanding." We therefore believe that, unless some radical change takes place very soon, in properly regulating the trade, the coal combination will cease to exist, and the utmost demoralization would follow such a step.

More depends upon the outcome of the coal trade under a combination during the next six months than the profits that may be realized. In the fall, the Pennsylvania's Schuylkill Valley line will be completed to a connection with its Wyoming Valley collieries, and it is said that it will secure fully 500,000 tons more business than it has had in past years. If the Pennsylvania road stands by its past policy of unrestriction, as it no doubt will, it will take a still larger proportion of the trade next year, and will become, of course, a much greater disturbing element than it ever has been in the past. There are other large interests that emphatically announced at the beginning of this year that they would not enter any combination next year. It is, therefore, essential that, during the remaining half of this year, the combination managers demonstrate its advantage to the trade; if not, it will be impossible to arrive at an arrangement for next year that will command confidence, or in any way benefit producers.

The Reading Company had in stock, at Port Richmond, on Saturday, 63,020 tons of coal, an increase of 10,345 tons for the week.

We quote ordinary free-burning coals f.o.b. as follows:

	Week ended July 2.	Week ended June 25.	Week ended June 18.
Lump	$3.00@	$3.0 @	$3.00@
Steamboat	3.00@	3.00@	3.00@
Broken	2.85@$3 00	2.85@$3 00	2 85@$2 90
Egg	2 85@ 3.00	2.85@ 3.00	2.85@ 2.90
Stove	3.10@ 3.25	3.10@ 3 25	3.20@ 3.40
Chestnut	2.75@ 3.00	2 75@ 3.00	2.75@ 3.00
Pea	1.75@ 2.00	1.90@ 2.00	1.90@ 2.00
Buckwheat	1.50@ 1.70	1.50@ 1.70	1.6 @ 1 70
Dust	1.20@ 1.25	1.25@	1.25@

We hear of lower prices than the above in some cases.

The Delaware, Lackawanna & Western Company is underselling Ward & Olyphant 10 cents a ton. Its prices are: Broken and Egg, $2.90; Stove, $3.30; and Chestnut, $3 per ton f.o.b. We also hear of good Broken and Egg coal offered at $2.75 f.o.b.

The Philadelphia & Reading Railroad Receivers will, the 12th inst., purchase the interest and coupons of the following divisional coal land mortgage bonds of the Reading Coal and Iron Company, due July 1st: Brady, Gray & Wetherill, Mount Carmel & Locust Mountain Coal Company, at the rate of 6 per cent; Saint Clair, Locust Mountain Summit Improvement Company, and Catharine Groh, 5 per cent; Tamaqua, Minersville, Diamond, Coal Hill, Gunkel & Branham, and Valley Furnace, 4 per cent.

Bituminous.

Spot coal is scarce, and prices for immediate delivery are stiff. Cars are more plentiful on the line of the Pennsylvania road than they were, but not nearly up to the demands. It is stated that the company has permitted a large number of its cars to go into the East, on long all-rail routes, which pay but a very small freight, to the disturbance of its regular tide-water business, which, if not very profitable, is more so than the all-rail business to the East.

Buffalo. July 1.

[From our Special Correspondent.]

There was a large attendance at the monthly meeting of the Joint Western Anthracite Coal Committee, on Tuesday last, at the Merchants' Exchange. In addition to the local representatives, forty names were recorded on the visitors' book, hailing from Chicago, St. Paul, Minneapolis, Erie, Elmira, Scranton, New York, Cleveland, Philadelphia, Bethlehem, Pa., Toledo, and Rochester; also from Toronto and Hamilton, Canada. The session lasted all day.

The committee decided to make no change in the price-list for July. An attempt was made in New York City, last week, to advance quotations 30 cents a ton by parties more interested in coal stock shares than in the coal itself, and telegrams were received here with the evident view of influencing the committee; but that body "took the dispatches for

what they were worth, and June prices continue in force," to use the words of a local dealer.

A considerable portion of the time of the committee was taken up in hearing reports from various coal centers at interior points, which were uniformly of one tenor—"That the retail figures were well sustained, and but very little disposition shown by consumers to place their orders for coal thus early in the season." These reports are fully confirmed by the small movement for line and local sales, the only coal moving being for lake shipment. A well-posted member of the committee states that "the trade at Chicago and St. Louis this season has probably never been more firmly in the hands of shippers of coal, and this state of affairs continues. The reason is, that prices have been wisely made in accordance with the condition of the market."

A local paper, after briefly reporting the meeting, says, "The tone of the trade is not so strong generally as could be wished." And further, "As to fixing the monthly allotment at the mines, it is found that these meetings can not do this. Those who ship largely by lake must have more coal than their proportion while navigation is open, so that the question is held unsettled until a later period."

The next meeting of the committee will be held at Saratoga, on the 28th of July.

As an illustration of the unanimity existing among the members of the Coal Exchange, the reception of bids for supplying coal to the public schools for the current year took place on Monday last. Twenty bids were received at the uniform rate of $4 for Egg and Grate, and $4 25 for Stove and Nut, per net ton. Superintendent Crooker said: "These bids appear to have been written in the same hand, as if it were the work of one man." A coal dealer present smiled knowingly, and replied: "Perhaps one of the boys put in Sunday at it, while the others took a day off." The only hitch in the apparent understanding of the coal men was, that two of the bidders agreed to "houzen" the coal. Alderman Green was inclined to view the "housing" condition as an important one, inasmuch as it would save the city from $700 to $800. The bids were submitted to the School Committee.

Large deliveries are now made of bituminous coal, on account of the contracts made early in the season by the various railroads centering here. Subscriptions are received in some of the mining districts for the benefit of the employés of the firm of Bell, Lewis & Yates. Sympathizers with the strikers started the movement.

Lake freights opened with good demand for vessels for Chicago and Milwaukee at last quotations; closing quiet and unsettled. Some shippers anticipate lower rates before many days elapse; vessel owners say that the talk is all nonsense, merely done to affect the market.

The coal shipments by lake from June 24th to 30th, both days inclusive, aggregated 54,965 tons; namely, 34,470 to Chicago, 16,265 to Milwaukee, 2280 to Green Bay, 800 to Racine, 100 to Bay City, 350 to Saginaw, and 700 to Toledo. The engagements and rates reported were per net ton as follows: 70c. to Chicago, Milwaukee, Green Bay, Racine, Kenosha, and Sheboygan; 15c. to Bay City; and 20c. to Toledo. A year since, the going rate was on the basis of 65c. to Chicago and Milwaukee, as compared with 80c. in 1884.

The charters by canal for the past week were as follows: 1 load to Newark, 55c. net, free out only; 1 to Syracuse, 55c. net, free out only; 3 to Syracuse, 65c. gross, free on, and 12½c. for unloading; 2 to Syracuse, 65c. gross, free on and 10c. for unloading; 1 load to West Troy, 85c. net, free out only. The nominal rates to New York are $1.20, and to Albany 90c. per net ton, captain to pay loading and unloading.

The receipts of coal by canal for the week ended June 30th were 3874 tons; for the month of June, 6642 tons; thus far this season, 15,810 tons, as compared with 8179 tons in 1885, and 12,598 tons in 1884. The shipments for the week ended June 30th, 1478 net tons; for the month of June, 3769 tons; thus far this season 6019 tons, as compared with 8881 tons in 1885, and 12,625 tons in 1884.

The shipments of coal by lake from Buffalo to Western points for the month of June were 199,610 net tons, as compared with 245,240 tons in 1885, and 220,180 tons in 1884; for the season to July 1st, this year, 501,070 tons, as compared with 437,480 tons in 1885, and 446,800 tons in 1884.

Serious complaints are made of the delay in unloading the coal cargoes in Duluth and Superior City.

Boston. June 30.

[From our Special Correspondent.]

"A dull and fairly steady market" tells the anthracite situation as viewed from the development at this port. Jobbers complain of receiving scarcely any orders. Notwithstanding this, quotations have shown no decline. As before noted, good stove coal can be had in abundance at less than the nominal asking price of $3.40 f.o.b. at New York, and sales are reported at $3.25 for individual coal. There is considerable talk here of an advance in July. We can not see where it is to come from, and do not expect it. At the same time, prices are likely to hold their own, and the existing freight situation alluded to below seems to point to the present as a good time to take on coal.

In bituminous, there is only a moderate movement. There has been more than usual talk within a few days concerning the bottom price at which bituminous can be bought. The report gained circulation that parties were selling at $2 f.o.b. at shipping port. This we believe to be incorrect. There are parties in the trade that may reduce the price to $2 later on, in case they do not get a sufficient tonnage at higher figures; but that low point has not been reached yet. Sales have been made at $2.10 f.o.b. The general price in this market is $2.15. Orders have been refused at $2.05, on matter of price alone. As before noted, shippers will not make such low prices delivered as on an f.o.b. basis. Nearly all the soft coal now sold is on an f.o.b. basis.

The attempt to break the minimum rates of the Vessel Owners' Association has centered at New York, and seems to have met with some slight success, noting a reduction of five cents a ton. It has been claimed, however, that vessels had been chartered at 90 cents, old bill of lading. Such a charter or charters may have been made, but the claim that they reflect the general situation is manifestly incorrect. It looks more than probable that rates will be maintained at the minimum. July 1st is here, and the production of soft coal is nearly a million tons less than at this time last year. Stocks are light in the East, and much bituminous is to come forward. Larger shipments of anthracite will also be in order soon.

We quote rates exclusive of discharging:

New York, 85@90c.; Philadelphia, $1.05; Baltimore, $1.15@$1.20; Newport News and Norfolk, $1.05@$1.10; Richmond, $1.10@$1.15; Cape Breton, $1.85@$2; Bay of Fundy, $1.60.

There is a light movement at retail. The city contracts have been the leading item of interest. Bids were as follows:

	1886.	1885.
City proper	$4 29	$4.39
South Boston	4.17	4.43
East Boston	4.13	4.33
Roxbury	4.48	4.54
Dorchester	4.52	4 85
Charlestown	4.17	4 23
Brighton	4 60	4.75
Bituminous	3.60	3.70

Considering the price at wholesale, these prices, although showing a decline this year, are about on a par with those of 1885.

Pittsburg. July 1.

[From our Special Correspondent.]

On Sunday, we had a rise sufficient to let out the coal that was ready, and let up the boats that went out on the previous rise. The run was a small one—1,028,000 bushels. The rise was very acceptable. The June run was pretty good size, namely, 11,716,000 bushels, the largest in ten years except 1881.

Prices are steady. River loaded, 4@5c.; railroad, 4¼@4¾c. Demand good, but there is a scarcity of cars.

Connellsville Coke.—Market steady. The demand is increasing. We continue to quote: Blast-Furnace, $1.50, f.o.b. cars at ovens; Foundry, $1.75; Crushed, $2.25.

FINANCIAL.

Mining Stocks.

NEW YORK, Friday Evening, July 2.

The mining market has had a relapse, compared with last week, when there appeared to be a promise of renewed activity. This week's transactions have been dull and without special features, showing a decrease of some 23,335 shares. There has been but small fluctuation in the prices.

The recent assessment levied by the Bodie Consolidated Mining Company has caused considerable dissatisfaction among the stockholders, and some of them are taking steps to have the affairs of the company investigated. From a circular recently issued by one of the stockholders, we take the following: "A mining company, or any other stock company, that does not cheerfully and promptly furnish its stockholders with all the information that it has in its possession has no reason to complain if the action of its management is severely criticised by any of its stockholders. The directors are placed in charge of the property of a corporation for the purpose of protecting the stockholders' interests. If they fail to do this conscientiously, they are betraying the confidence placed in them." The stock has been firm, ruling at from $1.50 @$1.40. Bulwer continued its downward movement, and went from $1.40@$1.05. Mono is firm at $2. Plymouth Consolidated received more attention than for some time past, and advanced from $13.88@$15. Quicksilver Preferred remains firm at from $23@$24.50.

The report that the recent strike in the Savage mine continues to improve has caused an additional advance in the price, which went from $2.40 to $4. A few weeks ago, it was about 90c. Consolidated California & Virginia ruled at from $1.45@$1.35. Hale & Norcross, at from $2.50@$2.40. Best & Belcher advanced from $1.15@$1.35. Eureka showed a few sales at from $3@$2.75.

The Colorado stocks were almost entirely neglected. Freeland showed a sale of 100 shares, at 80c. a share. Chrysolite, Little Chief, La Crosse, remained as usual.

The reports from the mines of the Rappahannock Company are more satisfactory, and an advance in the price no doubt may be shortly looked for. The sales continue to be large at from 11@13c.

Homestake continues active, ruling at from $21@$22.25. Caledonia sold at from 97@90c.

Ontario held its own at from $29@$29.50. Horn-Silver sold at $2.90. Stormont, at 12c.

Considerable business was done in Alice at from $1.60@$1.75.

Coal Stocks.

The stock market has met a great deal of discouraging news during the past week, without being greatly disturbed by it. The large export of gold during the past two weeks and the tendency of the money rates to advance are making conservative operators very cautious. The coal stocks have shown an inclination to be weak. Insiders, knowing that the workings of the coal combination are highly unsatisfactory, have sold stocks, and are advising their friends to keep out of them for the time being.

The dealings in Delaware, Lackawanna & Western have aggregated 129,006 shares at $133⅜@$129½, closing at $129¾. Delaware & Hudson has ranged between $101 and $98⅜, and closed at $99, with sales of 9992 shares. The transactions in Reading amount to 25,910 shares at $26@$23½, closing at $24¾. Jersey Central, with sales of 19,035 shares at $53⅞@$55¼, closed at $54⅝.

Pipe Line Certificates.

Messrs. Watson & Gibson, commission brokers, No. 49 Broadway, report for the week as follows:

Oil has been depressed throughout the week, though the news from the oil-field has been bullish in so far as it showed a falling off in the production of the Washington field, and a decline of number of rigs up and building and wells drilling. The pipe line statement will show an increase of stocks on hand of about 300,000 barrels, due to the production of Washington and Kane fields. We think oil is a good speculative purchase around 65. The summer season is a good one for exports.

The following table gives the quotations and sales at the Consolidated Stock and Petroleum Exchange:

		Opening.	Highest.	Lowest.	Closing.	Sales.
June	26....	68½c.	69⅝c.	68⅜c.	69c.	4,988,000
	28 ...	69¼	69½	68	68¼	3,488,000
	29.. .	68⅛	68⅛	66⅞	67⅛	3,670,000
	30....	67⅛	68⅛	66⅞	67⅝	3 541,000
July	1. ..	68¼	68¼	66¾	66⅜	3,751,000
	2. ..	66¾	67	65⅝	66	5,916,000
	Total sales.....	.....	.....	.....	.....	25,354,000

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par value.	Assessments. Total levied to date.	Assessments. Date and amount per share of last.			Dividends. Total paid to date.	Dividends. Date and amount per share of last.		
1	Adams, s. L	Colo.	$1,500,000	150,000	$10	*				$405,000	Jun.	1886	.15
2	Alice, s. C	Mont	10,000,000	400,000	25	*				725,000	Jun.	1886	.06¼
3	Amie Con., s. L	Colo.	5,000,000	500,000	10	*				330,000	Oct.	1883	.05
4	Atlantic, C	Mich	1,000,000	40,000	25	$280,000	Apl.	1875	$1.00	320,000	Jan.	1886	$1.00
5	Argenta, s	Nev.	10,000,000	100,000	100	295,000	July	1885	.10	40,000	Feb.	1880	.20
6	Barbee & Walker, s.	Utah	1,000,000	100,000	10	*				60,000	Nov	1880	.10
7	Bassick, G. S	Colo.	10,000,000	100,000	100	*				400,000	Mar.	1884	1.00
8	Belle Isle, s	Nev.	10,000,000	100,000	100	140,000	May	1886	.10	300,000	Dec.	1879	.25
9	Belcher, G. S	Nev.	10,000,000	100,000	100	2,217,335	ec.	1885	.80	15,397,000	Apl.	1876	1.00
10	Bellevue Idaho, s. L	Idah.	1,250,000	125,000	10	26,250	Dec.	1883	.10	100,000	May.	1886	.10
11	Big B'nd Hydraulic, G	Dak.	1,000,000	200,000	5	*				174,000	Jun.	1886	.03
12	Black Bear, G	Cal.	3,000,000	30,000	100	22,500	Dec.	1884	.25	895,000	May	1883	.20
13	Bodie Con., G. S	Cal.	10,000,000	100,000	100	324,990	Jun.	1886	.50	1,602,572	Apl.	1885	.50
14	Bonanza Developm't	C & M	3,000,000	300,000	10					135,000	Oct.	1882	.15
15	Bonanza K'g, Cons.	S. Cal.	1,000,000	100,000	10	*				185,000	Feb.	1880	.10
16	Boston & Mont. G	Mont	2,000,000	200,000	10	*				520,000	Jun	1886	.15
17	Breece, s	Colo.	5,000,000	200,000	25	*				2,000	Feb.	1880	.01
18	Brooklyn Lead, L. S	Utah	500,000	50,000	10					100,000	July	1886	.05
19	Bulwer, G	Cal	1,000,000	100,000	100	40,000	Oct.	1885	.20	175,000	Jan.	1884	.10
20	Caledonia, G	Dak	10,000,000	100,000	100	505,000	May	1885	.15	40,000	Feb.	1886	.10
21	Calumet & Hecla, C	Mich	2,500,000	100,000	25					27,850,000	Jun.	1886	5.00
22	Carbonate Hill, s. L	Colo.	2,000,000	200,000	10	*				80,000	Apl.	1884	.05
23	Caribou Con., s	Colo.	1,500,000	150,000	10	*				50,000	Mch	1880	.10
24	Castle Creek, G	Idah.	100,000	100,000	1					51,000	Oct.	1883	.03
25	Catalpa, s L	Colo.	3,000,000	300,000	10	*				270,000	May.	1884	.10
26	Central, C	Mich	500,000	20,000	25	100,000	Sept	1861	.06	1,780,000	Jan.	1886	2.00
27	Christy, s	Utah	10,000,000	100,000	100					10,000	Jun.	1885	.10
28	Chrysolite, s. L	Colo.	10,000,000	200,000	50	*				1,600,000	Dec.	1884	.25
29	Colorado Central, s. L	Colo.	2,750,000	275,000	10	*				102,500	Jun.	1886	.05
30	Cons Cal. & Va., G. S.	Nev..	21,600,000	216,000	100	108,000	Jan.	1885	.20	64,800	Feb.	1886	.30
31	Con. Gold Mining, G	Ga...	500,000	100,000	5	*				108,000	Nov.	1883	.02
32	Contention, s	Ariz.	12,500,000	250,000	50					‡2,587,000	Dec.	1884	.25
33	Crescent, s. L. G	Utah	15,000,000	600,000	25	*				180,000	Sept	1885	.05
34	Crown Point, G. S	Nev.	10,000,000	100,000	100	2,675,000	Feb.	1862	.25	11,588,000	Jan.	1875	2.00
35	Deadwood-Terra, G	Dak..	5,000,000	200,000	25	*				‖900,000	Jan.	1883	.10
36	Derbec B. Grav., G. S.	Cal..	10,000,000	10 ,000	100	90,000	Dec.	1881	.10	140,000	Jan.	1886	.10
37	Dunkin, S. L	Colo.	5,000,000	200,000	25	*				220,000	Sept.	1884	.05
38	Elkhorn, G. S	Mont	1,000,000	100,000	10	50,000	July	1883	.50	115,000	Apl.	1886	.50
39	Eureka Con., G. S. L	Nev..	5,000,000	50,000	100	450,000	Apl	1886	1.00	4,817,500	July	1882	.25
40	Evening Star, S. L	Colo.	500,000	30,000	10	*				1,400,000	Nov	1883	.50
41	Excelsior, G	Cal..	10,000,000	100,000	100	560,000	Sept	1885	1 00	875,000	Oct.	1880	.25
42	Father de Smet, G	Dak.	10,000,000	100 000	100	200,000	Nov	1878	1.00	1,125,000	Dec.	1885	.20
43	Franklin, C	Mich	1,000,000	40,000	25	220,000	Jun	1871	....	52,000	Jun.	1886	1.00
44	Freeland, G. S. C	Colo.	5,000,000	200,000	25	*				170,000	Apl	1886	.10
45	Fresno Enterprise, G	Cal..	5,000,000	100,000	50		Mch	1883	.10	110,000	July	1882	.10
46	Gould & Curry, G. S.	Nev..	10,800,000	108,000	100	4,001,000	Jun	1886	.50	3,826,000	Oct	1879	10.00
47	Grand Central, S	Ariz.	1,000,000	100,000	10					625,000	Dec.	1882	.25
48	Grand Prize, S	Nev.	10,000,000	100,000	100	570, 0	Apl.	1886	.50	495,000	Mar.	1884	.25
49	Granite, S	Colo.	125,000	125,000	1					6,250	May	1883	.01
50	Granite Mountain, S.	Mont	10,000,000	400,000	25					1,200,000	July	1886	.25
51	Green Mountain, G	Cal..	1,250,000	125,000	10	*				212,000	Nov.	1881	.07½
52	Hale & Norcross, G. S	Nev..	11,200,000	112,000	100	4,874,000	May.	1886	.50	1,598,000	Apl	1871	5.00
53	Hall-Anderson, G	N. S..	150,000	150,000	1					7,000	Jan.	1882	.05
54	Hecla Con., S. G. L. C	Mont	1,500,000	30,000	50					1,032,000	July	1886	.50
55	Hel'a Mg & Red, G. S. L	Mont	3,315,000	663,000	5	*				197,07	July	1886	.06
56	Holmes, S	Nev..	10,000,000	100,000	100	300,000	Sept	1885	10	75,000	Apl.	1886	.25
57	Holyoke, G	Idah.	200,000	200,000	1					27,000	Feb.	1883	.10
58	Homestake, G	Dak.	12,500,000	125,000	100	200,000	July	1878	1.00	3,418,750	Jun.	1886	.40
59	Honorine, S. L	Utah	5 0,000	250,000	2	25,000	Jun.	1883	....	62,500	Nov.	1885	.05
60	Hope, S	Mont	400,000	8,000	50	*				158,252	Oct.	1884	1.50
61	Horn-Silver, S. L	Utah	10,000,000	400,000	25	*				4,000,000	Nov.	1884	.50
62	Idaho, G	Cal..	310,000	3,100	100					3,750,000	Jun.	1886	7.50
63	Independence, S	Nev..	10,000,000	100,000	100	320,000	Aug.	1885	.20	225,000	Sept	1879	.25
64	Indian Queen, S	Nev..	250,000	125,000	2					368,750	July	1883	.03
65	Inyo, G	Cal..	500,000	100,000	5	*				45,000	Apl.	1882	.05
66	Iron Hill, S	Dak.	2,500,000	25 ,000	50	82,500	Oct.	1885	....	75,000	Jun	1886	.05
67	Iron-Silver, S. L	Colo	10,000,000	500,000	50	*				1,600,000	Apl.	1886	20
68	Jackson, G. S	Nev.	5,000,000	50,000	100	10,000	Nov.	1880	.20	40,000	Jun.	1886	.10
69	Jocuistita, S	Mex.	2,500,000	250,000	10					1,200,000	Feb.	1886	.50
70	Kentuck	Nev..	3,000,000	30,000	100	342,000	Nov	1881	.30	1,350,000	July	1884	.10
71	La Plata, S. L	Colo.	2,000,000	200,000	10	*				610,000	Sept	1882	.30
72	Leadville Cons., S. L	Colo	4,000,000	400,000	10	*				390,000	May.	1886	.05
73	Lexington, G. S	Mont	4,000,000	40,000	100	*				565,000	Jan	1885	2.00
74	Little Chief, S. L	Colo	10,000,00	200,000	50	*				780,000	Mch	1885	.10
75	Little Pittsburg, S. L	Colo.	20,000,000	200,000	100	*				1,050, 00	Mch	1880	.50
76	Manhattan, S	Nev.	5,000,000	50,000	100	150,000	July	1879	1.00	437,500	Feb	1886	.25
77	Marguerite, G	Cal..	500,000	25,000	20					18 750	Oct.	1882	.25
78	Martin White, S	Nev.	10,000,000	100,000	100	1,15 ,00	Mar.	1886	.25	90,000	July	1879	.30
79	Minnesota, C	Mich	1,000,000	40,000	25	420,000	Apl.	1883	1 00	1,820,000	Mar.	1878	....
80	Mono, G	Colo.	5,000,000	50,000	100	50,000	Jun	1885	.50	12,500	Mar.	1886	.25
81	Montana, Lt, G. S	Mont	3,300,000	33,000	100	*				301,950	Jan.	1886	.37½
82	Morning Star, S. L	Colo.	1,000,000	100,000	10	*				550,000	Sept	1885	.25
83	Mulligan, S. G	Mont	2,000,000	400,000	5	*				260,000	Mar	1886	.07½
84	Mount Pleasant, G	Cal.	150,000	150,000	1	*				105,000	Mar.	1884	.10
85	Mt. Diablo, S	Nev	5,000,000	50,000	100	137,500	Jun.	1880	2.00	80,000	July	1885	.20
86	Napa, Q	Cal..	700,000	100,000	7					290,000	Jan.	1884	.10
87	Navajo, G. S	Nev..	10,000,000	100,000	100	395,000	Mar.	1886	25	325,000	Feb.	1885	.25
88	N Hoover Hill, G. S.	N. C.	300,000	120,000	2½	*				30,000	Dec.	1885	.06¼
89	New York Hill, G	Cal..	5,000,000	50,000	100	62,500	Oct	1885	.15	215,000	Aug.	1882	.10
90	Northern Belle, S	Nev..	5,0 0,000	50,000	100	425,000	Jan.	1884	8.30	2,400,000	Apl.	1883	50
91	North Belle Isle, S	Nev..	10,000,000	100,000	100	150,000	Mar	1886	.20	30,000	Aug.	1881	.15
92	Ontario, S. L	Utah	15,000,000	150,000	100					7,475,000	Jun.	1886	.50
93	Ophir, G. S	Nev..	10,000,000	100,000	100	3,937,800	Jun.	1886	.25	1,595,000	July	1882	1.00
94	Original, S. C	Mont	1,500,000	60,000	25	*				114,000	Oct.	1884	.05
95	Osceola, C	Mich	1,250,000	50,000	25	480,000	Apl.	1876	1.60	972,500	Sept	1884	25
96	Oxford, G	Colo.	125,000	125,000	1	*				34,500	Oct.	1885	.02
97	Paradise Valley, S	Nev.	10,000,000	100,000	100	47,000	Mar.	1882	.15	6,000	Feb.	1886	.10
98	Pleasant Valley, G. S.	Cal..	10,000,000	100,000	100	40,000	Mar	1884	.10	30,000	Dec.	1882	05
99	Plutus, G. S. C. L	Colo.	2,000,000	200,000	10	*				210,000	Feb.	1886	.10
100	Plymouth Con, G	Cal..	5,000,000	100,000	50	*				1,700 000	July	1883	.25
101	Prassian, S. L	Colo	1,500,000	150,000	10					132,000	Jan	1883	.10
102	Quicksilver, pref., Q	Cal..	4,300,000	43,000	100					731,400	Feb.	1886	1.50
103	" com., Q	Cal .	5,700,000	57,000	100					151,000	July	1882	.40
104	Quincy, C	Mich	1,000,000	40,000	25	200,000	Dec.	1882	....	4,330,000	Jan.	1886	4.00
105	Richmond, S. L	Nev..	1,350,000	54,000	25	*				4,177,587	May	1886	1.25
106	Ridge, C	Mich.	5 0,000	20,000	25	220,000	Mar.	1886	.50	10 ,000	Feb.	1880	.50
107	Rising Sun, S	Dak..	750,000	150,000	5	*				52,000	May	1881	.07½
108	Robinson Con., S. L	Colo.	10,000,000	200,000	50	*				585,000	Mar.	1886	.05
109	Robert E. Lee, S. L	Colo.	10,000,000	500,000	20					100,000	Dec.	1882	.10
110	Rooks, G	Vt...	500,000	50,000	10	*				61,000	Apr	1885	.30
111	San Francisco, C	Cal..	5,000,000	50,000	100	45,000	Sept	1880	.50	20,000	Feb.	188	.05
112	Savage, S	Nev..	11,200,000	112,000	100	6,156,000	Jun.	1886	.50	4,480,000	July	1879	3.00
113	Security L Mg, Mfg.	Colo.	1,000,000	100,000	10	*				50,000	July	1884	.....
114	Shoshone, G	Idah	150,000	150,000	1					7,500	Apl.	1883	.01
115	Sierra Buttes, G	Cal..	225,000	22,500	10					1,431,639	Apl.	1886	.25
116	Sierra Grande, S	N. M.	2,500,000	500,000	5					860,000	Sept	1884	.25
117	Sierra Nevada, G. S.	Nev.	10,000,000	100,000	100	5,947,698	May	1886	.25	102,000	Jan.	1871	1.00
118	Silver Cord, G. S. L	Colo.	5,000,000	500,000	10					225,000	Nov.	1883	.25
119	Silver King, S	Ariz.	10,000,000	100,000	100					1,700,000	Jun	1884	.25
120	Silverton, G. S. L	Colo.	2,000,000	200,000	10	*				56,000	Jun	1886	.02
121	Small Hopes Cons., S	Colo.	5,000,000	250,000	20	*				2,175,000	Jun.	1886	.50
122	Smuggler, S. L	Colo.	600,000	6 ,000	10					66,700	Aug.	1883	.25¾
123	Socorro, C	N. M.	250,000	2,500	100					4,000	Mch	1882	.00
124	South Yuba, G	Cal..	2,000,000	40,000	50	*				150,000	Oct.	1881	.75
125	Spring Valley, G	Cal..	200,000	200,000	1	*				50,000	Jan.	1881	.25
126	Standard, G. S	Cal..	10 000,000	100,000	100	25,000	Oct.	1884	.25	4,425,000	Mar.	1884	.25
127	Stormont, S	Utah	500,000	500,000	1	*				155,000	Nov.	1881	.05
128	St. Joseph, L	Mo..	1,100,00	110,000	10	*				495,000	Dec.	1885	.20
129	Syndicate, G	Cal..	10,000,000	100,000	100	38,729	July	1882	.15	48,308	Sept	1885	.10
130	Tip Top, S	Ariz	10,000,000	100,000	100	250,000	Sept	1883	.25	100,000	Nov.	1881	.20
131	Tombstone, G. S. L	Ariz	12,500,000	500,000	25	*				1,250,000	Apl.	1882	.10
132	True Fissure, G. S. L	Utah	1,500,000	150,000	10	*				75,000	Jun.	1883	.15
133	United Verde, C	Ariz.	3,000,000	300,000	10	*				97,500	Feb.	1884	.20
134	Valencia, M	N. M.	156,000	1,560	100	*				41,25	Apl	1886	2.50
135	Vizina, S	Ariz.	5,000,000	200,000	25	*				140,000	Apl.	1882	.10
136	Yellow Jacket, G. S.	Nev.	12,000,000	12 ,000	100	5,444,000	Dec.	1845	.75	2,184,000	Aug.	1871	1.50

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Value.	Assessments. Total levied to date.	Assessments. Date and amount per share of last.		
1	Agassiz Cons., S. L	Colo.	$2,500,000	50,000	$50	*			
2	Albion, S. L	Nev.	15,000,000	150,000	100	$577,000	July	1883	.50
3	Alloucz, C	Mich	2,000,000	80,000	25	240,000	Feb.	1884	.50
4	Alpha Con., G. S.	Nev..	3,000,000	30,000	100	430,000	Mar	1886	.50
5	Alta, S	Nev..	10,080,000	100,800	100	1,951,400	Feb.	1886	25
6	American Flag, S	Colo	1,250,000	125,000	10	300,000	Jun.	1877	.25
7	Aspen Mg. & S, S. L	Colo	2,000,000	200,000	10				
8	Barcelona, G	Nev..	5,000,000	200,000	25	*			
9	Battle Creek, G	Dak.	5,000,000	200,000	25				
10	Bear Creek	Cal..	300,000	300,000	1				
11	Bechtel Con., G	Cal..	10,000,000	100,000	100	173,500	n.	1883	.10
12	Belvidere	Cal..		60,000		92,000	b.	1882	.15
13	Belmont, S	Nev.	5,000,000	50,000	100	725,000	Apl.	1886	.10
14	Best & Belcher, G. S.	Nev.	10,080,000	100,800	100	1,698,190	Jun.	1886	.50
15	Big Pittsburg, S. L	Colo.	20,000,000	100		*			
16	Black Jack, G	Cal..	250,000	100,000	2½				
17	Bonanza Chief	Mon	1,000,000	1,000,000	1	*			
18	Bondholder	Colo.	5,000,000	200,000	2½				
19	Boston Con., G	Cal..	13,000,000	100,000	100	170,000	Nov	1883	.25
20	Bradshaw, S	Ariz.	2,250,000	225,000	10				
21	Buckeye	Colo.	2,000,000	400,000	5	*			
22	" preferred	Colo.				*			
23	Bull Domingo, S. L	Colo.	10,000,000	200,000	50	*			
24	Bullion, G. S	Nev.	10,000,000	100,000	100	4,570,000	July	1885	.25
25	Bye and Bye	Ariz.	1,000,000	100,000	10	*			
26	Calaveras, G	Cal..	500,000	500,000	1	*			
27	Cal. W'r & M. Co., G	Cal..							
28	Castle Creek, G	Idah.							
29	Catskill, S	Nev..	1,500,000	30 ,000	5				
30	Central Arizona, S	Ariz.	10,000,000	100,000	100				
31	Cherokee, G	Cal..	1,500,000	150,000	10				
32	Chollar, S	Nev..	11,200,0 0	112,000	100	984,000	May	1886	.50
33	Climax, S. L	Colo.	2,000,000	200,000	10	*			
34	Colorado No. 2, S. L	Colo.	100,000	10,000	10				
35	Con. Imperial, G. S.	Nev..	50,000,000	500,0 0	100	1,050,000	May	1885	.10
36	Con. Pacific, G	Cal..	6,000,000	60,000	100	174,000	Feb.	1886	.15
37	**Cop. Queen Cons, C	Ariz	1,400 00	140,0 0	10				
38	Crescent, S. L	Colo.	3,000,000	300,000	10				
39	Crocker, S	Ariz.	10,000,000	100,000	100	65,000	May	1886	.20
40	Crowell, G	N. C	500,000	500,000	1				
41	Dahlonega, G	Ga...	250,0 0	250,000	1	*			
42	Dardanelles, G	Cal..	1,000,000	100,000	10				
43	Decatur, S	Colo.	1,500,000	300,000	5	*			
44	Denver City, S. L	Colo.	5,000,0 0	500,000	10	*			
45	Denver Gold	Colo.	300,000	60,000	5				
46	Deseret, G S	Utah	500,000	50,000	10	*			
47	Dunderberg, S	Colo	1,500,000	150,000	10	*			
48	Durango, G	Colo	500,000	500,000	1	*			
49	Eastern Dev. Co., Lt	N. S.	1,500,000	150,000	10	990,000	Mar.	1886	1.00
50	Elko Con., S	Nev..					Mar	1884	.15
51	Empire Lt, G	Mon.	5 0,000	100,000	5				
52	Empire, S	Utah	10,000,000	100,000	100	*			
53	Enterprise, S. L	Colo.	800,000	80,000	10	*			
54	Eureka Tunnel, S. L	Nev..	10,000,000	1 0,000	100	*			
55	Exchequer	Nev.	10,000,000	100,000	100	840,000	Aug	1885	.20
56	Garfield, Lt., G. S	Nev.	500,000	100,000	5				
57	Globe Copper	Ariz							
58	Gold Placer, G	Colo.	5,000,000	200,000	25	*			
59	Goodshaw, G	Cal..	10,000,000	100,000	100	229,314	Dec.	1885	.25
60	Grand Belt, C	Tex.	12,000,000	120,000	100	*			
61	Granville, G	N. C.	300,0 0	300,000	1	*			
62	Gregory-Bobtail, G	Colo.	550,000	550,000	1				
63	Gregory Con, G	Mon.	3,000,000	300,000	10	*			
64	Harlem M. & M. Co, G.	Cal..	1,000,000	200,000	5				
65	Head Cent. & Tr. S. G	Ariz.	10,000,000	100,000	100				
66	Hidalgo, S	Mex.	200,000	20,000	10				
67	Highland, C	Mich	500,000	25,000	25				
68	Hortense, S	Colo.	2,000,000	20 ,000	10				
69	Iroquois, C	Mich	1,250,000	50,000	25				
70	J. D. Reymert	Ariz	10,000,000	100,000	100	*			
71	Julia Cons, G. S	Nev..	11,000,0 0	110,000	100	1,438,000	Nov	1885	.10
72	Kearsarge, C	Mich	1,250,000	50,000	25	100,000	Apl.	1886	5.00
73	Lacrosse, G	Colo.	1 00,000	100,000	10	*	Sept	1882	.25
74	Lee Basin, S L	Colo.	5,000,000	500,000	10	*	Jan.	1885	.10
75	Leviathan, S	Nev..	10,000,000	100,000	100	380,000			
76	Lucerne, S	Colo.	5,000,000	500,000	10	*	Dec.	1881	.....
77	Mammoth Bar, G	Cal..	10,000,000	100,000	100	50,000	Feb.	1883	.25
78	Mariposa pref., G	Cal..	5,000,000	50,000	100	1,687,500	Dec.	1881	.20
79	" common, G	Cal..	10,000,000	100,000	100	1,975,00	Mar	1884	.15
80	May Belle, G	Cal..	10,000,000	100,000	100	84,000	Feb.	1886	.25
81	Mayflower, S	Nev..	1 0,000,000	100,000	100	60,000	Apl.	1886	.25
82	Mexican, G. S	Nev.	10,000,000	100,800	100	2,565,760	Jun.	1886	.25
83	Michoacan Synd	Mex.							
84	Mine & Starr, S. L	Colo	1,000,000	200,000	5	*			
85	Miner Boy, G. S. L	Colo.	5,0 0,000	500,000	10	*			
86	Miller	Nev	5,000,000	200,000	25				
87	Moose Silver, S	Colo.	3,000,00	300,000	10	*			
88	New Pittsburg, S. L	Colo	2,000,000	200,000	10	*			
89	North Standard, G	Cal..	10,000,000	100,000	100	20,000	Nov		
90	Noonday	Cal..	600,000	60,000	10	208,000	Dec.	1881	.10
91	Old Dominion, C	Ariz.	3,000,000	300,000	10				
92	Oriental	Nev	2,000,00	200,000	10				
93	Oriental & Miller, S	Nev..	10,000,000	400,000	25				
94	Overman, G. S	Nev..	11,520,000	115,200	100	3,685,040	Apl.	1885	.20
95	Parrott, G	Mon.	1,800,000	180,000	10				
96	Park, S	Utah	2,000,000	200,000	10				
97	Peer, S	Ariz	10,000,000	100,000	100	125,000	Apl.	1886	.10
98	Peerless, S	Ariz.	10,000,000	100,000	100	275,000	May	1886	.50
99	Potosi	Nev..	10,200,000	112,000	100	1,044,800	Apl.	1886	.30
100	Rappahannock, G. S.	Va	250,000	250,000	1	*			
101	Red Elephant, S	Colo	500,000	500,000	1	*			
102	Retort M. & M. Co	Colo.			10				
103	Rollins, G. S	Colo.	5,000,000	200,000	25	*			
104	Ropes, G. S	Mich	2,000,000	80,000	25	63,200	Mar	1886	.10
105	S. P. & Canon del A. C.	N. M.	10,000,000	400,000	25	*			
106	Silver Cliff, S	Colo.	5,000,000	400,000					
107	Sonora Con	Mex.	5,000,000	200,000	25	*			
108	South Bodie, G	Cal..					Mar	1882	.15
109	South Bulwer, G	Cal..	10,0 0,000	100,000	100	100,000	May	1881	.25
110	South Hite	Cal..	10,000,000	100,000	100	195,000	Jan.	1885	.05
111	South Pacific	Cal..	500,000	100,000	5				
112	State Line, S	Nev..	250,000	250,000	1				
113	Sunday Lake, I	Mich	1,250,000	50,000	25				
114	Sullivan, G. S. L	Me...	500,000	100,000	5	125,000	Dec	1882	.25
115	Sutro Tunnel	Nev..	20,000,000	2,000,000	10	*			
116	Tamarack, C	Mich.	1,000,000	40,000	25	520,000	Apl	1885	3.00
117	Taylor-Plumas, G	Cal..	1,000,000	200,000	5	*			
118	Toga Cons., G	Cal..	10,000,0 0	100,000	10	*			
119	Todos Santos, S	Mex.	1,000,000	100,000	100	325,000	Oct	1882	.10
120	Tuscarora, S	Nev.	10,000,000	100,000	1 0	110,000	Oct	1881	.15
121	Unadilla, S	Colo.	50,000,000	500,000	100	*			
122	Union Con., G S	Nev..	10,000,000	100,000	100	2,085,000	Apl	1886	.25
123	United M. Lundy, G	Cal..	1,000,000	20,000	5				
124	Utah, S	Nev..	2,000,000	20,000	100	1,810,000	Dec	1884	.50
125	Vandewater	Nev.,	20,000,000	200,000	100	*			
126	Washington	Ariz.	2,000,000	200,000	10				
127	Wellington, G	Nev..	100,0 0	50,000	2	*			
128	West Granite Mt., S.	Mon	5,000,000	50,000	10	*			
129	Whalen Copper	Nev..	2,5 0,000	10 ,000	25				
130	Whittier Dr'e Bull'n	Nev..	1,000,000	100,000	10				

G. Gold. S. Silver. L. Lead C Copper. * Non-assessable. † This company, as the Western, up to December 10th, 1881, paid $1,400,000. ‡ Non-assessable for three years. § The Deadwood has previously paid $275,000 in eleven dividends, and the Terra $75,000. ‖ Previous to the consolidation of the California and Consolidated Virginia in August, 1884, the California had paid $31,320,000 in dividends, and the Consolidated Virginia $42,950,000. ** Previous to the consolidation of the Copper Queen with the Atalanta, August, 1885, the Cop

NEW YORK MINING STOCKS.

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	June 26. H.	June 26. L.	June 28. H.	June 28. L.	June 29. H.	June 29. L.	June 30. H.	June 30. L.	July 1. H.	July 1. L.	July 2. H.	July 2. L.	SALES.
Alice, Mon.	1.60										1.75	1.60	2,000
Amie Con., Co.													
Argenta													
Bassick, Co.													
Belle Isle, Ne.													
Bodie Cons., Ca.	1.45		1.50		1.45		1.40		1.45	1.40			2,000
Breece													
Bulwer, Ca.	1.40	1.35	1.40		1.25		1.05				1.10		2,800
Caledonia	.97				.92	.90							600
Castle Creek													
Chrysolite, Co.	.50						.53						600
Colorado Central													
Cons. Cal. & Va., Ne.	1.45		1.35		1.40		1.35		1.35				6,040
Crown Point													
Deadwood-Terra											2.80		300
Eureka Cons., Ne.	3.00						2.75						600
Father de Smet, Dk.													
Freeland					.80								100
Gold Stripe, Ca.													
Gould & Curry, Ne.													
Grand Prize, Ne.													
Green Mountain, Ca.													
Hale & Norcross, Ne.	2.50						2.20		2.40				900
Hall-Anderson, N. S.													
Homestake, Dk.	22.25	22.00			21.75		22.00	21.00	21.50				560
Horn-Silver, Ut.	2.90						2.90						250
Independence, Ne.													
Iron Silver, Co.													
Leadville C., Co.													
Little Chief, Co.							.23		.24				2,500
Little Pittsburg, Co.													
Martin White, Ne.													
Moulton													
Navajo, Ne.													
North Belle Isle, Ne.													
Ontario, Ut			29.25		29.00		29.00		29.50				85
Ophir													
Osceola													
Plymouth	13.88		14.00		14.63	14.00	14.75		14.88		15.00		170
Quicksilver Pref., Ca.					23.00		24.50	23.00					260
" Com., Ca.													
Quincy													
Robinson Cons., Co.											.53		100
Savage, Ne.	2.40	2.35	2.35		3.00		3 30		4.00	3.65			1,550
Sierra Nevada, Ne.									.75				800
Silver King, Ar.													
Spring Valley, Ca.													
Standard, Ca.													
Stormont, Ut.											.12		500
Tip Top, Ar.													
Yellow Jacket													

NON-DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	June 26. H.	June 26. L.	June 28. H.	June 28. L.	June 29. H.	June 29. L.	June 30. H.	June 30. L.	July 1. H.	July 1. L.	July 2. H.	July 2. L.	SALES.
Albion													
Alta													
American Flag									.07				200
Barcelona, G.													
Bechtel Con., G.													
Belvidere													
Belcher													
Best & B'licher, G. S.									1.15		1.35		700
Big Pittsburg, S. L.													
Bowman Silver													
Bull-Domingo, S.L.													
Central Ariz'na, S.													
Chollar													
Cons. Imperial													
Con. Pacific													
Cusi													
Decatur													
Durango, G.													
Eastern Oregon													
Goodshaw, G.	.45												200
Harlem M. & M. Co.													
Harshaw													
Kossuth													
Lacrosse, G.	.09		.09		.09		.09		.09		.09		10,500
Mariposa Pref., G.													
" Com., G.													
Mexican, G. S.									.40				700
Mono	2.00		2.05										500
New Pittsburg													
North Standard, G.													
N. Horn-Silv'r, S L.													
Pri'nt'l & Miller, S													
Plutus													
Potosi													
Rappahannock, G	.12		.11		.12		.12		.13	.12	.13		10,500
Red Elephant, S.													
Ridge													
Silver Cliff, S.													
Sonora Con.													
South Bodie, G.													
South Bulwer, G.													
South Hite													
South Pacific													
State Line, 1 & 4, S.													
" Nos. 2 & 3, S.													
Sutro Tunnel	.11								.11				2,300
Tamarack													
Tioga													
Unadilla, S													
Union Cons., G. S.	.55						.50		.50	.48	.47		2,900
Utah													

Dividend shares sold, 22,615. Non-dividend shares sold, 28,500.

ASSESSMENTS.

COMPANY.	No.	When levied.	Delinquent in office.	Day of sale.	Amount.
Andes, Nev.	29	May 28	July 2	July 22	.25
Apex, Utah		June 12	Aug. 2	Aug. 2	.03
Baltimore & North Carolina, N. C.		June 7	July 10	July 10	.10
Bannock, Idaho.		June 7	July 26	July 26	.50
Bear Butte, Dak.		June 14	Aug. 2	Aug. 18	¼
Belmont, Nev.	40	Apl. 30	*J'ne24	*J'ly 20	.10
Best & Belcher, Nev.	34	June 14	July 20	Aug. 9	.50
Bodie Cons., Cal.	5	June 21	July 26	Aug. 16	.50
Bodie Tunnel, Cal.					.25
Car. Mammoth, Dak.	1	June 21	July 24	Aug. 10	.01
Chollar, Nev.	20	May 21	June 24	July 15	.50
Climax, Dak.	1	June 10	July 9	July 20	¼
Crocker, Ariz.	3	May 25	July 6	July 28	.20
Dudley, Cal.	12	June 21	July 27	Aug. 16	.25
Eldorado, Dak.		June 1	July 2	July 20	¼
Golden Fleece, Cal.	5	May 20	July 13	Aug. 2	20.00
Gould & Curry, Nev.	53	June 21	July 26	Aug. 17	.50
Hale & Norcross, Nev.	90	May 10	June 14	July 7	.50
Hartford, Dak.		May 27	June 29	July 15	¼
Homew'd B'nd, Dak.	1	May 25	June 26	July 20	¼
Iron City, Dak.		June 7	July 26	Aug. 16	.02
Iron Mountain, Dak.	1	May 31	July 5	July 20	¼
Justice, Nev.	44	May 12	June 16	July 6	.10
Live Oak Drift, Cal.	1	May 25	June 30	July 22	.05
Liberty, Dak.	3	May 24	June 25	July 12	.02
Lucky Hill Con., Nev.	3	April 5	June 7	July 7	.05
Mammoth, Utah		Apl. 21	June 10	July 10	.10
Mexican, Nev.	32	June 17	July 22	Aug. 12	.25
New Basil Con., Nev.	9	May 19	June 24	July 15	.05
North Peer, Ariz.	3	May 19	June 24	July 19	.02
Ontario, Dak.		June 21	July 21	Aug. 7	¼
Ophir, Nev	5	June 7	July 13	Aug. 2	.25
Palomas Placer, Cal.	1	June 1	July 5	July 19	.02
Peerless, Ariz.	8	May 12	June 22	July 16	.50
Potosi, Nev.		June 25			.30
Rainbow, Dak.	3	June 1	July 3	July 20	¼
Rockland Land & Mining, Mich.		June 8	Aug. 1	Aug. 1	.03
Ruby, Dak		June 3	July 5	Aug. 5	.01
Ruby Wonder, Dak.	1	June 14	July 14	Aug. 2	¼
Savage, Nev.	66	June 17	July 20	Aug. 9	.50
Sierra Nevada, Nev.	85	May 27	July 1	July 20	.25
Silver Ridge, Dak.	1	May 13	June 17	July 17	.01
Spruce Gulch, Dak.	1	June 22	July 26	Aug. 7	¼
West Galena, Dak.		June 5	July 8	July 27	½

* The delinquent day of the above assessment is hereby postponed to the 24th day of June, 1886, and the day of sale of delinquent stock until the 20th day of July.

Meetings.

Hydro-Pneumatic Ore Mill Company, No. 7 Nassau street, New York City, July 13th.

Dividends.

Derbec Blue Gravel Mining Company, of California, paid dividend No. 14, of ten cents a share, or $10,000, June 22d, at San Francisco.

Granite Mountain Mining Company, of Montana, has declared dividend No. 20, of twenty-five cents a share, or $100,000, payable July 7th, at St. Louis.

Helena Mining and Reduction Company, of Montana, has declared dividend No. 7, of six cents a share, or $39,780, payable July 20th, at the Farmers' Loan and Trust Company's office.

Jackson Mining Company, of Nevada, paid dividend No. 9, of ten cents a share, or $5000, June 26th, at San Francisco.

Small Hopes Consolidated Mining Company, of Colorado, has declared dividend No. 42, of fifty cents a share, or $125,000, payable on and after June 28th, at No. 1 Broadway, New York City.

San Francisco Mining Stock Quotations.

Daily Range of Prices for the Week.

NAME OF COMPANY.	CLOSING QUOTATIONS. June 25.	June 26.	June 28.	June 29.	June 30.	July 1.
Albion						
Alpha						
Alta	.55	.50	.50	.50	.50	.50
Argenta						
Bechtel						
Belcher		1.12½				
Belle Isle						
Best & Belcher	1.25	1.12½	1.12½	1.25	1.12½	1.37½
Bodie	1.50	1.50	1.50	1.50	1.50	1.50
Bullion						
Bulwer	1.25	1.25	1.25	.90	1.00	1.00
Chollar	1.12½	1.00	1.00	1 00	1.12½	2.00
Con. Pacific	.25	.25			.25	
Con. Cal. & Va.	1.37½	1.37½	1.37½	1.37½	1.37½	1.50
Crown Point	.95	.90	.90	1.12½	1.00	1.12½
Day						
Elko Cons						
Eureka Cons	3.25	3.25	3.25	2.75	2.75	2.87½
Exchequer						
Gould & Curry	1.37½	1.25	1.25	1.37½	1.25	1.50
Grand Prize						
Hale & Norcross	2.37½	2.25	2.25	2.25	2.25	3.00
Independence						
Martin White						
Mexican	.50	.40	.40	.45	.40	.50
Mono	1.87½		1.87½	1.87½		
Mount Diablo	2.75				2.75	2.00
Navajo	.70	.75	.75	.75	.70	.70
Northern Belle						
North Belle Isle						
Ophir	.70	.70	.70	.80	.75	.90
Overman						
Potosi	.60	.55	.55	60	.60	.80
Savage	2.50	2.37½	2.37½	3.37½	3.50	4.00
Scorpion						
Sierra Nevada	.45	.45	.45	.70	.70	.75
Silver King						
Tip-Top						
Union Cons	.50	.45	.45	.50	.45	.60
Utah	.70	.65	.65	.65	.60	.60
Wales Cons						
Yellow Jacket	1.25	1.25	1.25	1.37½	1.37½	1.50

Unlisted Stocks and Foreign Quotations.

We give below the most reliable quotations obtainable for unlisted stocks and quotations on outside and foreign exchanges :

NAME OF COMPANY.	Location.	Price.	Where quoted.
Adams, S. L.	Colo.	$4@$5	Unlisted
Bellevue, S. L.	Idaho.	$5	Unlisted
Big Bend H'dr'lic, G.	Dak.	$5	Unlisted
Bird's Eye Creek, G.	Cal.	$3.12½@$4.37½	London
Bonanza King, G	Cal.	$10	Unlisted
California, G	Colo.	75c.@$1.00	London
Colo. United, S. L.	Colo.	$10.62½@$11.87½	London
Eb'rh'dt & Mon't'r, S	Nev.	$3.12@$3.37	London
Elkhorn, G. S.	Mont.	$10	Unlisted
Gold Hill, G	N. C.	$1.75@$2.25	London
Granite Mt., S.	Mont.	$31	St. Louis
Helene, G. S. L. C.	Mont.	$2.25	Helena
Honorine, S. L.	Utah.	75c.	Unlisted
Iron Hill, S.	Dak.	$7	Deadwood
I. X. L., G.	Cal.	31¼@93¾c.	London
Kohinoor & Donaldson, G. S.	Colo.	50@62c.	London
La Plata, S. L.	Colo.	31¼@93¾c.	London
La Trinidad, S.	Mex.	$10.00@$12.50	London
Lexington, G. S.	Mont.	$12	Paris
"Org'niz'rs' shares"	Mont.	40c.	Paris
Montana, Lt., G. S.	Mont.	$40.00@$41.25	London
New Albion, G.	N. S.	$4.50@$4.75	London
New Emma, S.	Utah.	62@87c.	London
New Hoover Hill, G. S	N. C.	$1.00@$1.25	London
Oxford, G.	N. S.	$1.25@$1.87½	London
Placerville, G.	Cal.	$1.25@$1.50	London
Plumas Eureka, G.	Cal.	$1.87½@$3.12½	London
Richmond Con., S. L.	Nev.	$32.50@$33.75	London
Ruby & Dunderberg, G.	Nev.	93¾c.@$1.56¼	London
Russell Gold, G.	N. C.	68@81c.	London
Sierra Buttes, G	Cal.	$6.25@$7.50	London
Silver Queen United, S.	Mex.	$10.00@$10.62½	London
Small Hopes, S	Colo.	$8.00@$10.00	St. Louis
St. Joseph's, L.	Mo.	$7@$7.50	Unlisted
Uncle Sam, S.	Dak.	$1.50	Deadwood
United Mexican, S. ‡	Mex.	$13.75@$15.00	London

Foreign quotations are per mail advices on basis of £1 = $5 and $1 = 5 fcs.

Boston Copper and Silver Stocks.

[From our Special Correspondent.]

BOSTON, July 1.

The principal dealings in mining stocks the past week have been in Allouez, which became prominent last week for its rapid advance to $5 a share on the sensational reports from the mine. This week, however, it has been active at a decline to $1⅝, on the report that the facts in relation to the strike were somewhat exaggerated, and there was a general desire to sell the stock. The market opened at $5 for a small lot, and the decline to $3½ was rapid. At this point

COAL STOCKS.

NAME OF COMPANY.	Par value of shares.	Quotations of New York stocks are based on the equivalent of $100. Philadelphia prices are quoted so much per share.												Sales from June 26th to July 2d, inclusive.
		June 26.		June 28.		June 29.		June 30.		July 1.		July 2.		
		H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Barclay Coal														
Cameron Coal	50	19		18⅝		18¾	18¼	18¾	18⅛	18¾	18⅝	19	18½	2,448
Col., C. & I	10	25		24⅝		24⅞				24¾		24½		600
Ches. & O. RR	100	9⅛								9⅛	9¼			125
Consol. Coal	100													
Cumb. C. & I	100													
Del. & H. C	100	101	99⅞	100¼		100⅛	98¾	99⅝	98⅜	99⅛	99	99⅛	99	9,992
D., L. & W. RR	50	133⅜	132⅝	133	132¼	132⅞	131½	131¾	129½	130½	129¾	130¼	129½	129,006
Elk Lick Coal Co														
Lehigh C. & N.†	50	50½				50¾	50⅛	50¼	50	50¼				959
Lehigh Valley RR.†	50	56¼	56⅛			56¾	56	56		56				275
L. & W. C. & I. Co														
Maryland Coal	100													
Montauk Coal	100													
Morris & Essex	50							144		143½				45
New Central Coal	100									11				100
N. J. C. RR	100	54⅛	53⅞	54⅛	53⅞	55¼	54¼	54⅝	54¼	54¾	54⅞	54¾	54½	19,035
N. Y. & S. Coal	50													
Penn. Coal	50													
Penn. RR.†	50	53⅝	53½			53⅝	53	53½	53⅛	53⅝	53½			4,159
Ph. & R. RR.*	50	26	25⅜	25⅞	25¼	25½	24	24⅝	23⅞	24½	24¼	25	24¾	42,793
Spring Mountain	50													
Westmoreland Coal†	50													

* Of the sales of this stock, 16,873 were in Philadelphia, and 25,910 in New York.
The quotations for these stocks are not percentage, but actual price. Total sales, 209,537.

there seemed to be orders to buy, and it advanced to $4¼; but the pressure to sell was too great, and it again declined rapidly, without further rally, to $1⅝. At this price, it seems to be wanted, and sales to-day were made at $1⅝. Total sales for the week, about 6000 shares. Aside from Allouez, there seems to be very little interest in the market. About 50 shares of Calumet & Hecla have been sold at $211@$212, which is a shade better than last week. Quincy sold at $47, but only 25 shares were wanted; and 20 shares of Franklin at $8½@$8¾, ex dividend. Osceola sold at $11—70 shares, and the rest of the list was neglected.

In silver stocks, there was no special feature, prices remaining about as last week, with but little doing.

3 P.M.—Calumet & Hecla advanced to $216, sales and bid. Huron sold at $1. Closing prices: Allouez $1⅝ bid. Atlantic, $6½ bid. Calumet & Hecla, $216 bid. Franklin, $8½ bid. Osceola, $10½ bid, $12 asked. Quincy, $47 bid. Tamarack, $85 bid.

FREIGHTS.

Coastwise Freights.

Per ton of 2240 lbs.

Representing the latest actual charters to July 2d:

To	From Philadelphia	From Baltimore.	From New York shipping ports.
Alexandria	.60		
Baltimore	.58§		
Bangor	1.05*		
Bath, Me	1.05*	1.15	.90*
Beverly	1.05*		.90*
Boston, Mass	1.05*	1.15	.85*
Bridgeport, Conn.		1.00	.55
Brooklyn		1.00	.18§
Cambridge, Mass.	1.05*‡		.85*‡
Cambridgeport	1.05*‡		.85*‡
Charleston, S. C.	.70@.75	.80	
Charlestown	1.05*		.85*
Chelsea	1.05*		.85*
Com. Pt., Mass.	1.05*		
E. Boston	1.05*		.85*
East Cambridge	1.05*‡		
E. Gr'nwich, R. I.			.80
Fall River			.75@.80
Galveston		3.00	
Gardner	1.05*¶		
Georgetown, D. C.	.60		
Gloucester	1.10*		
Lynn	1.05@1.15*		
Marblehead	1.10*		
Newark		1.25***	
New Bedford	.90*	1.00	.85
Newburyport		1.30¶	
New Haven		1.00	.55
New London		1.00	.75
New York		1.00	.18§
Norfolk, Va	.50		
Norwich			.75@.80
Portland, Me	1.05*	1.15	
Portsmouth, N. H.	1.15*	1.25	.95*
Portsmouth, Va.	.50		
Providence	.90*	1.00	.75@.85
Richmond, Va.	.60		
Rockport	1.25*		
Roxbury, Mass.	1.05*		
Saco	1.05*¶††		
Salem, Mass.	1.05@1.15*		.85*
Savannah		1.00	
Somerset		1.00	
Washington	.60		
Williamsb'g, N.Y.		1.00	
Wilmington, N.C.		.90@1.00	

* And discharging. † And discharging and towing. ‡ 3c. Per bridge extra. § Alongside. ‖ And towing up and down. ¶ And towing. †† Pilotage. ** Below bridge. *** Old B. L.

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